

Appendix A

RF Test Data for BT V5.0 (BDR/EDR) (Conducted Measurement)

Product Name: Multi Function Portable BT Speaker

Trade Mark: N/A

Test Model: ANC-BS949

Environmental Conditions

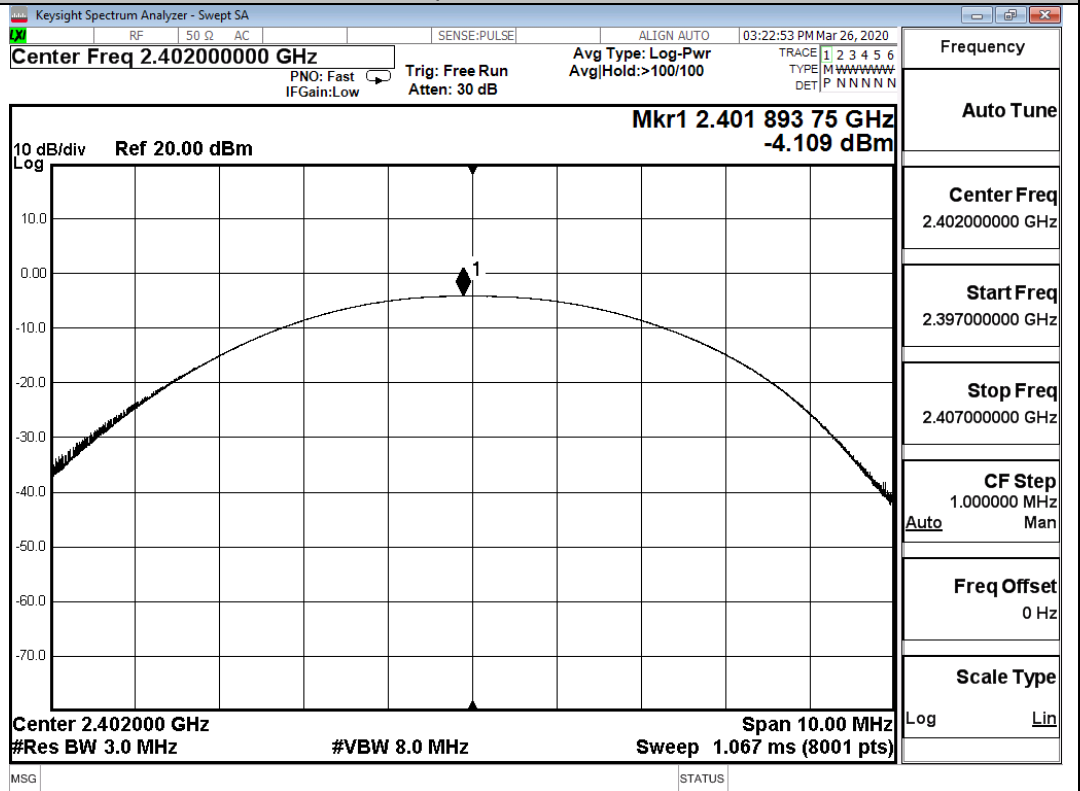
Temperature:	23.2 ° C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	CHUANG WANG
Supervised by:	JAYDEN ZHUO

A.1 Maximum Conducted Peak Output Power

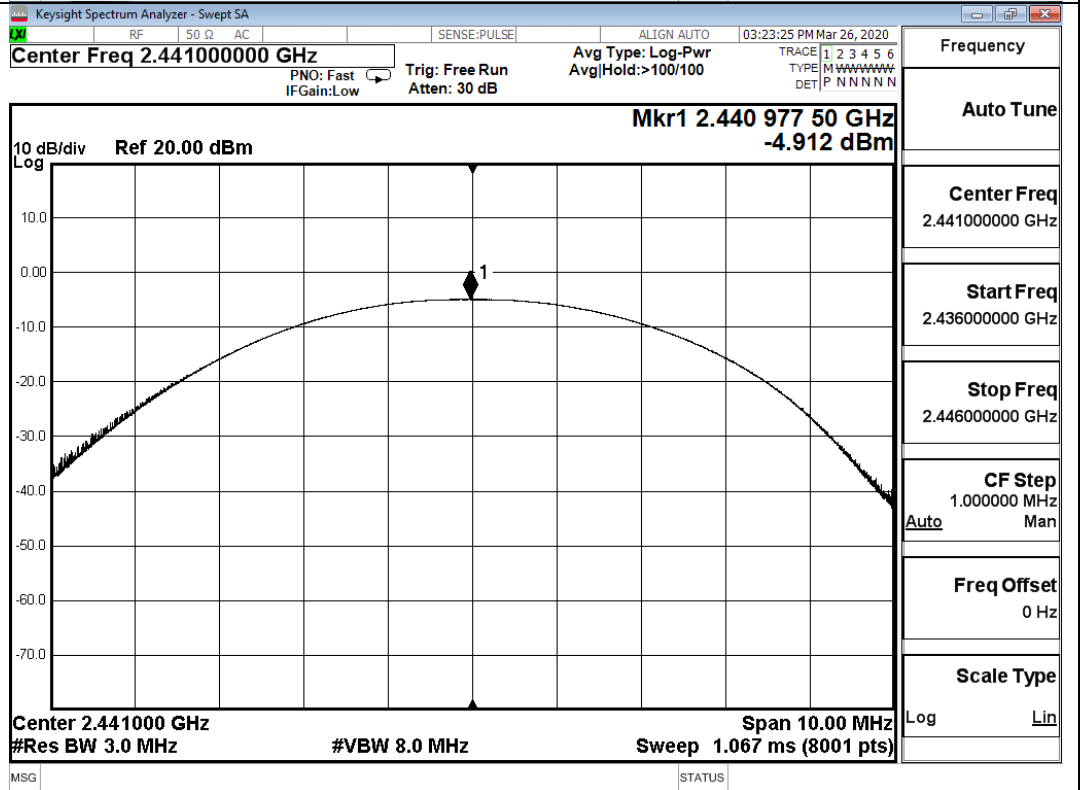
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.109	21	PASS
	MCH	-4.912	21	PASS
	HCH	-5.116	21	PASS
$\pi/4$ DQPSK	LCH	-1.885	21	PASS
	MCH	-2.564	21	PASS
	HCH	-2.760	21	PASS
8-DPSK	LCH	-1.283	21	PASS
	MCH	-2.007	21	PASS
	HCH	-2.159	21	PASS

Test Graphs

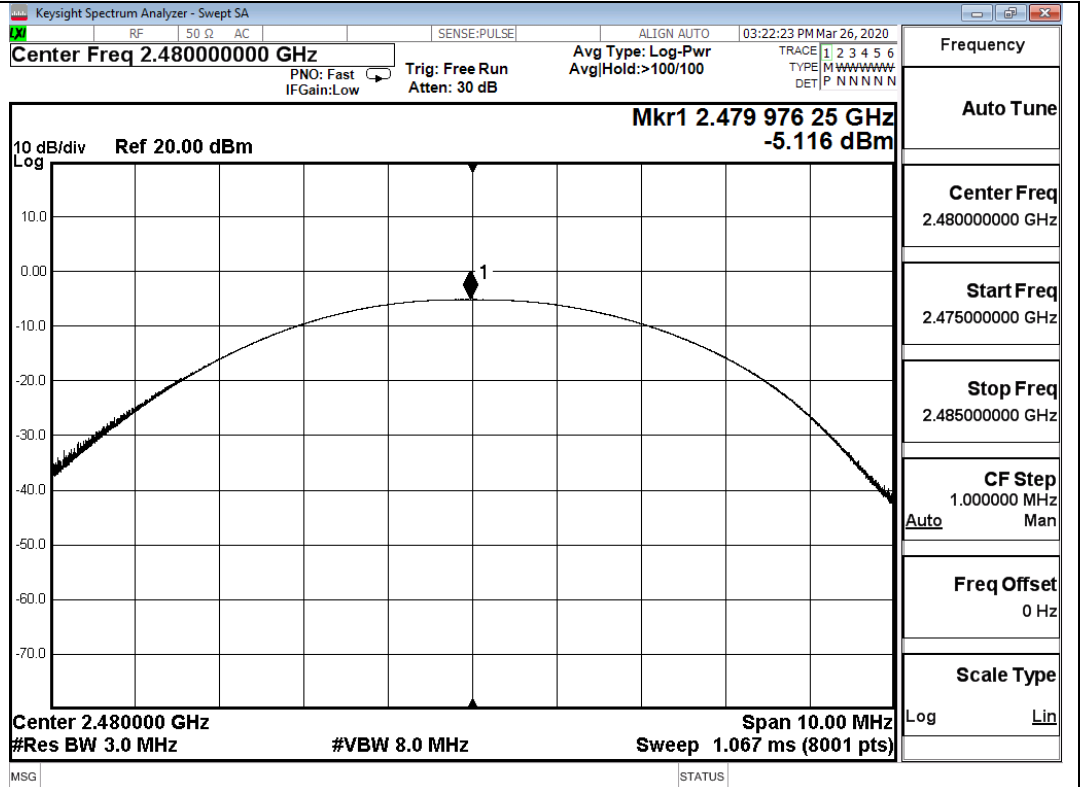
GFSK/LCH



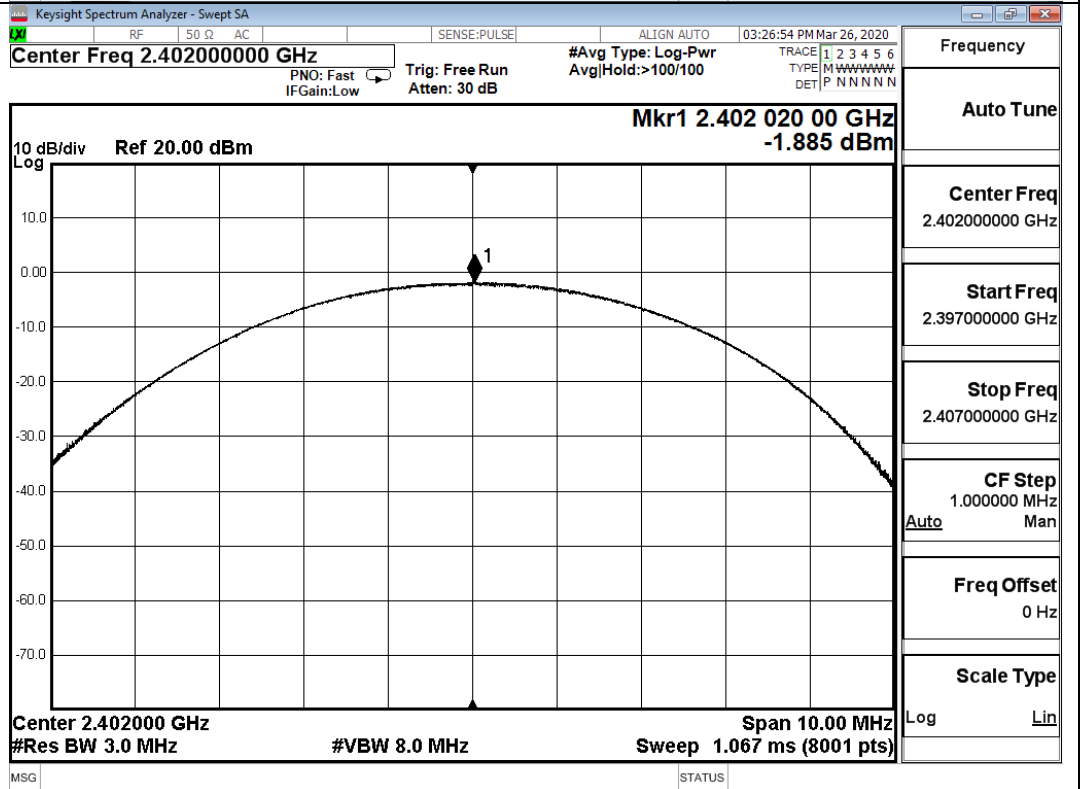
GFSK/MCH



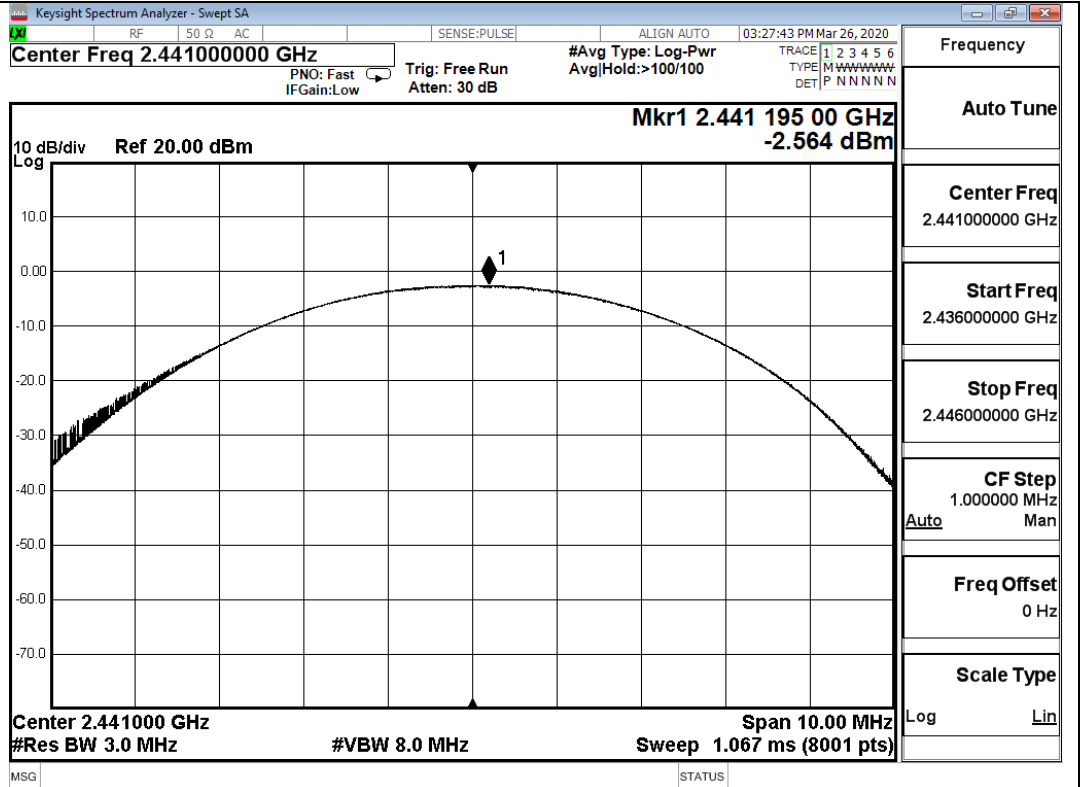
GFSK/HCH



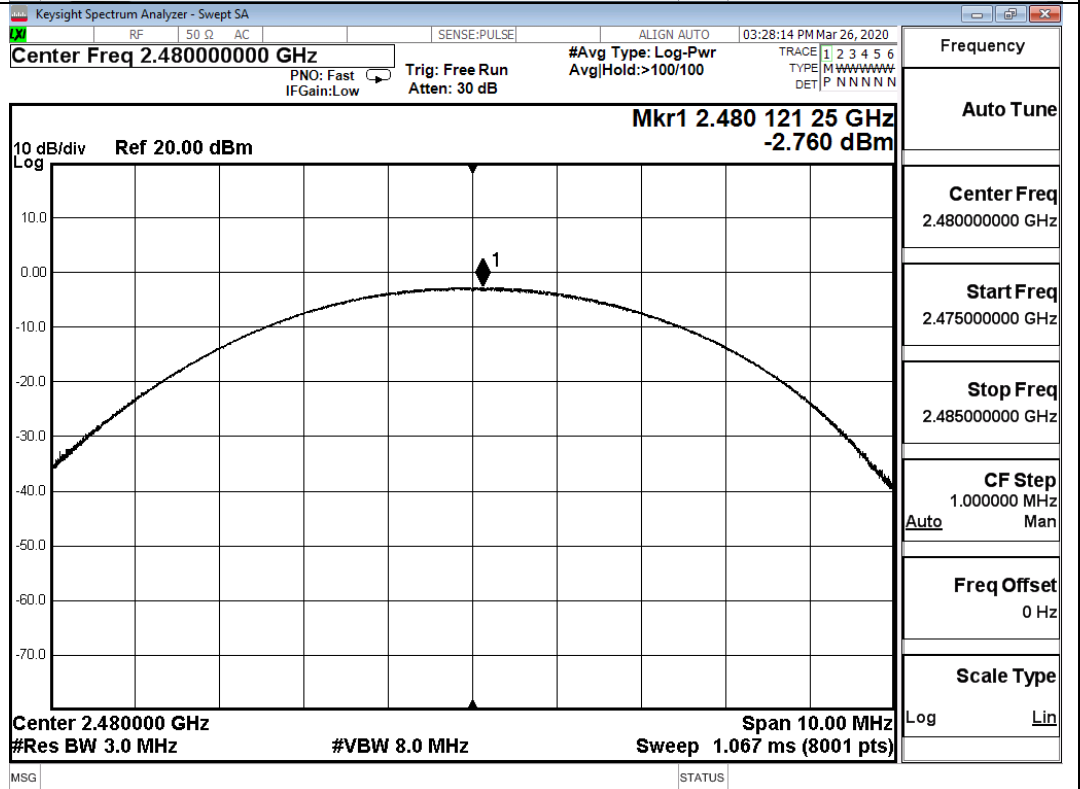
$\pi/4$ DQPSK/LCH



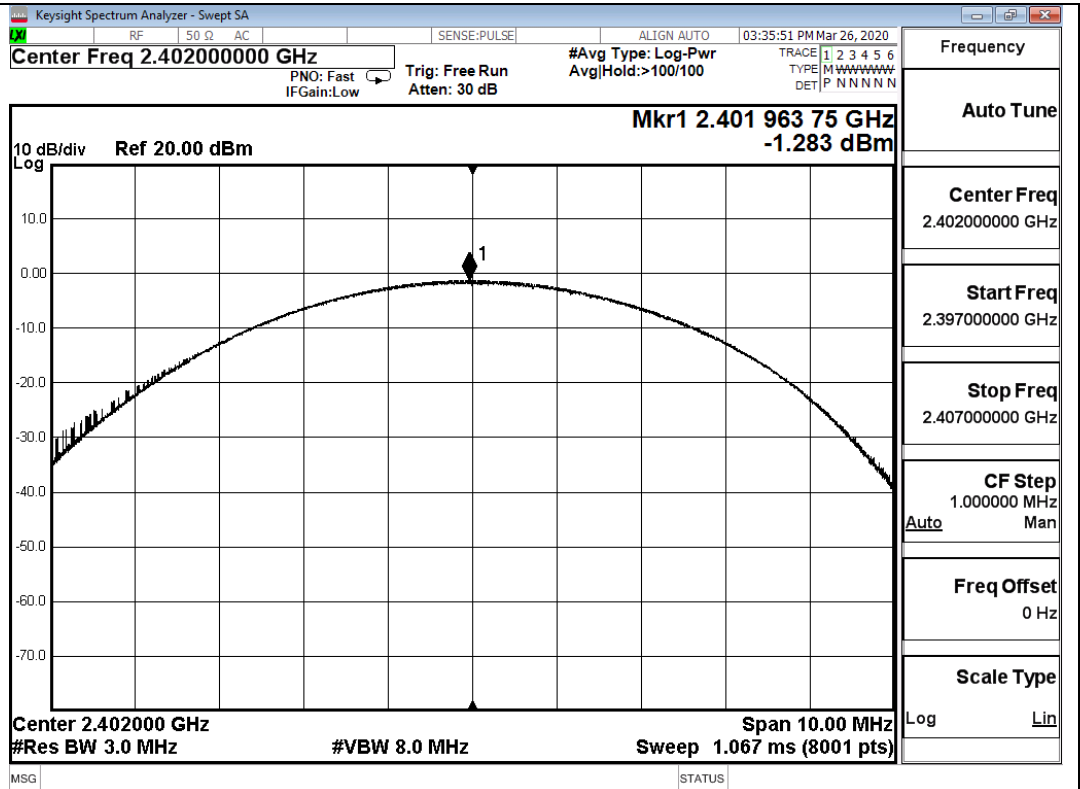
$\pi/4$ DQPSK/MCH



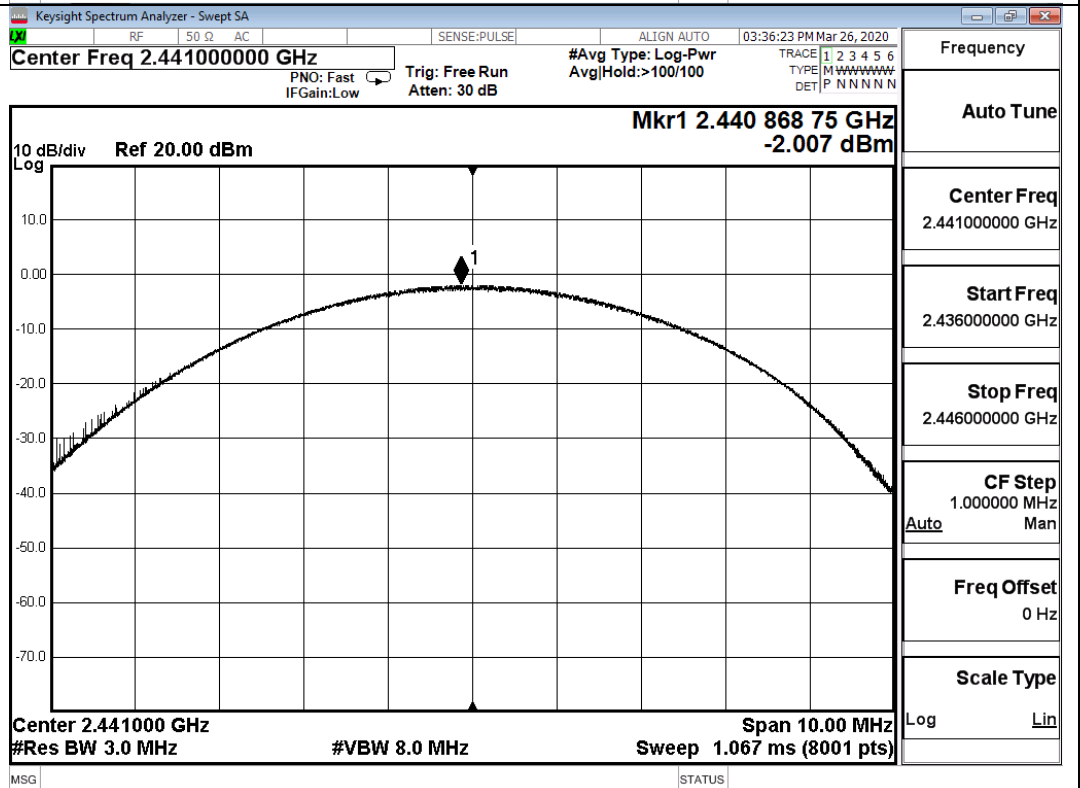
$\pi/4$ DQPSK/HCH



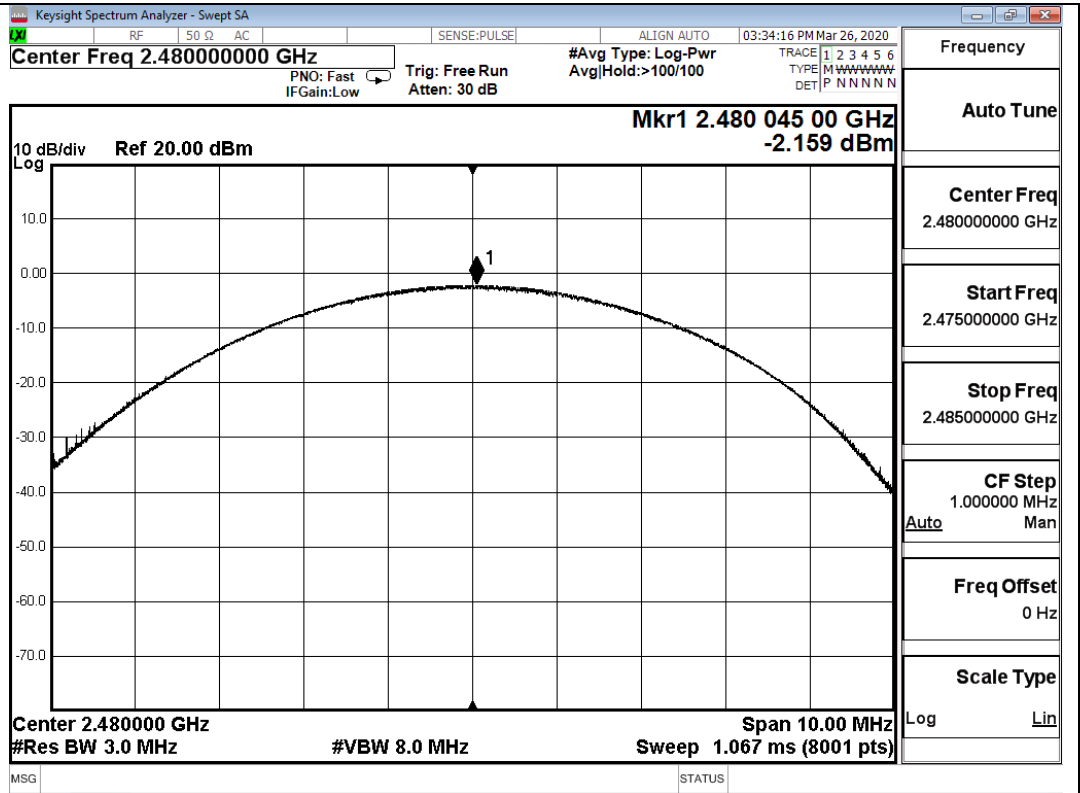
8-DPSK/LCH



8-DPSK/MCH

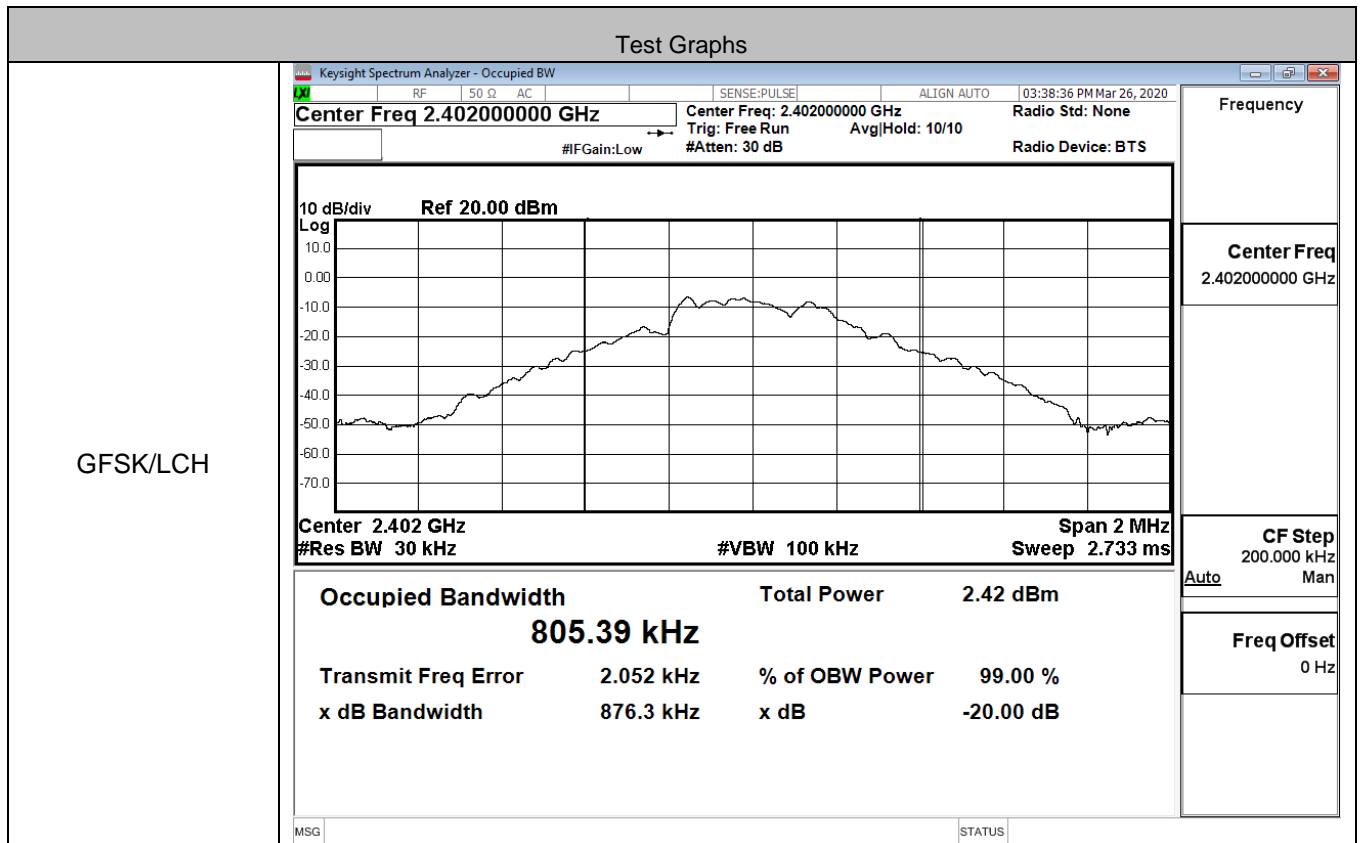


8-DPSK/HCH

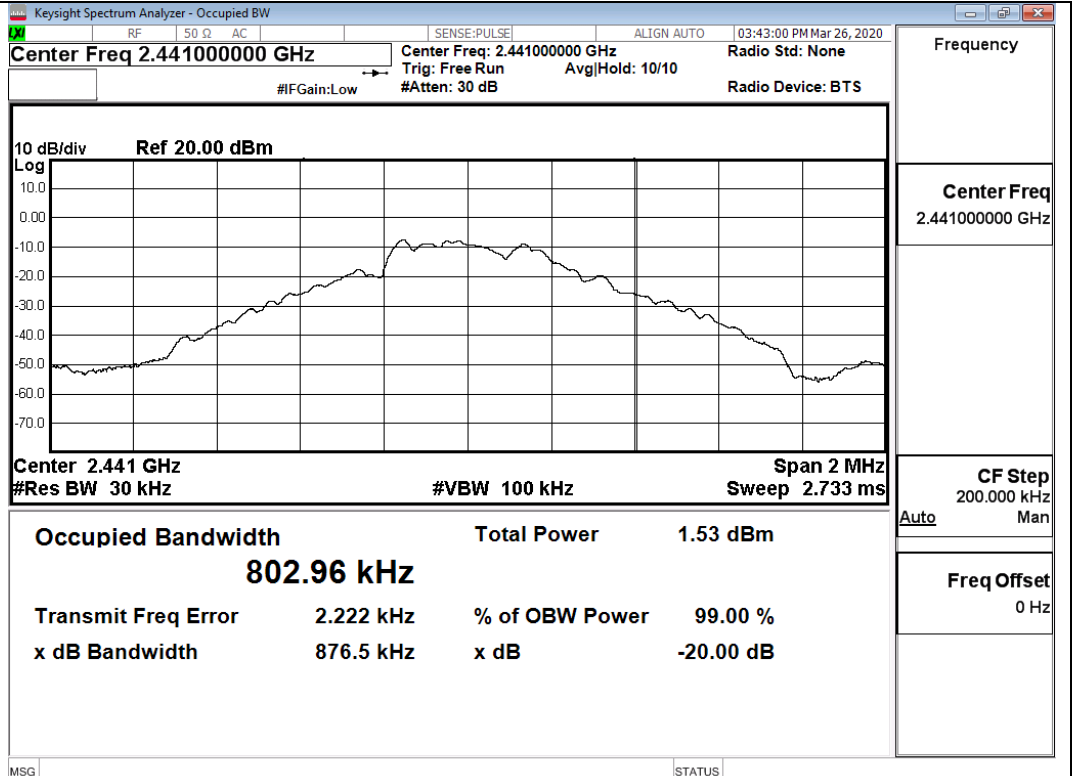


A.2 99% and 20dB Bandwidth

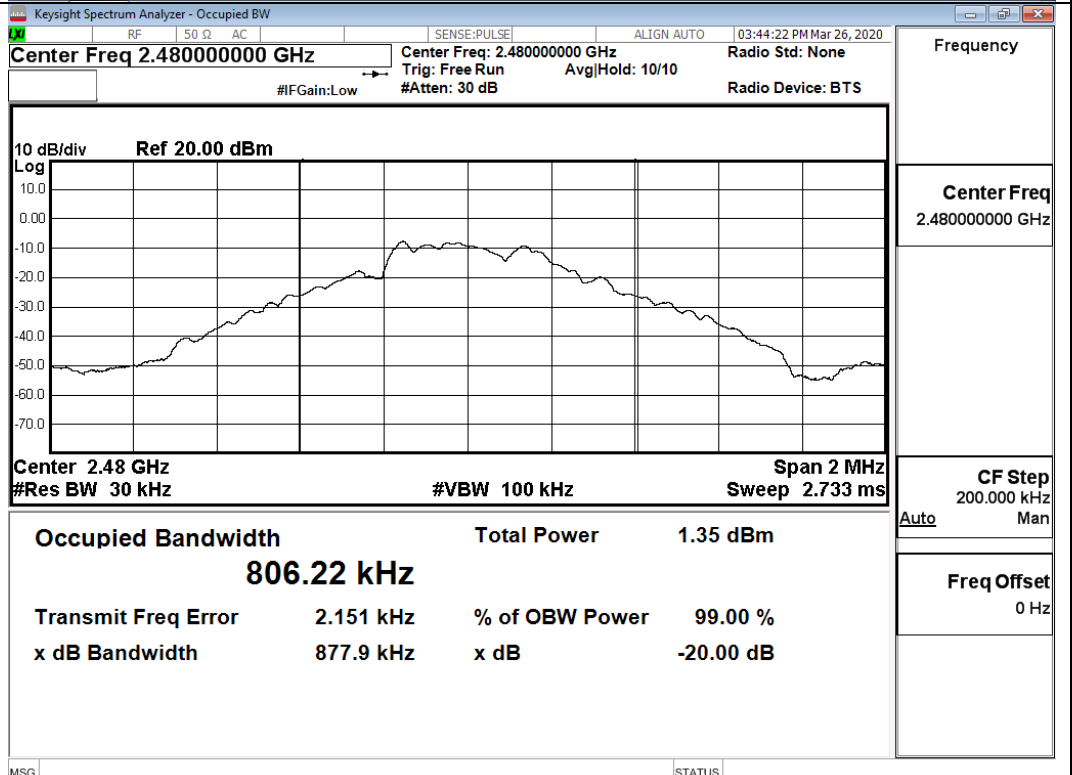
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.80539	0.8763	Not Specified	PASS
	MCH	0.80296	0.8765	Not Specified	PASS
	HCH	0.80622	0.8779	Not Specified	PASS
π/4DQPSK	LCH	1.1566	1.264	Not Specified	PASS
	MCH	1.1573	1.267	Not Specified	PASS
	HCH	1.1564	1.264	Not Specified	PASS
8-DPSK	LCH	1.1444	1.245	Not Specified	PASS
	MCH	1.1428	1.245	Not Specified	PASS
	HCH	1.1420	1.246	Not Specified	PASS



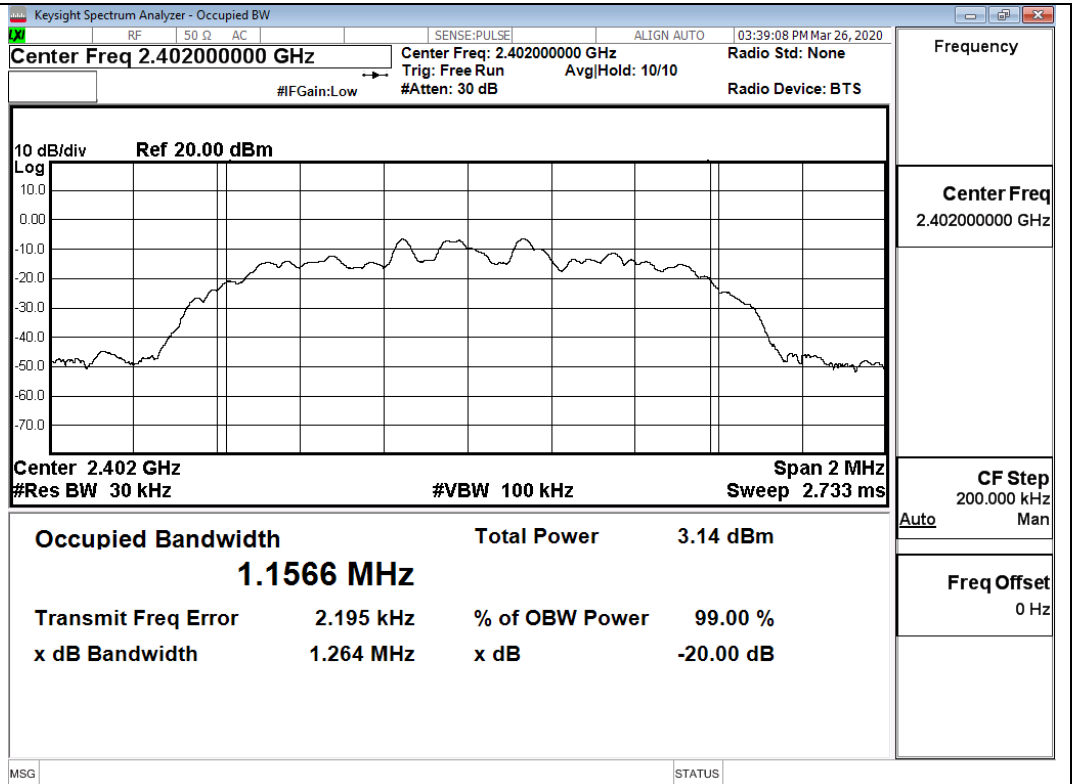
GFSK/MCH



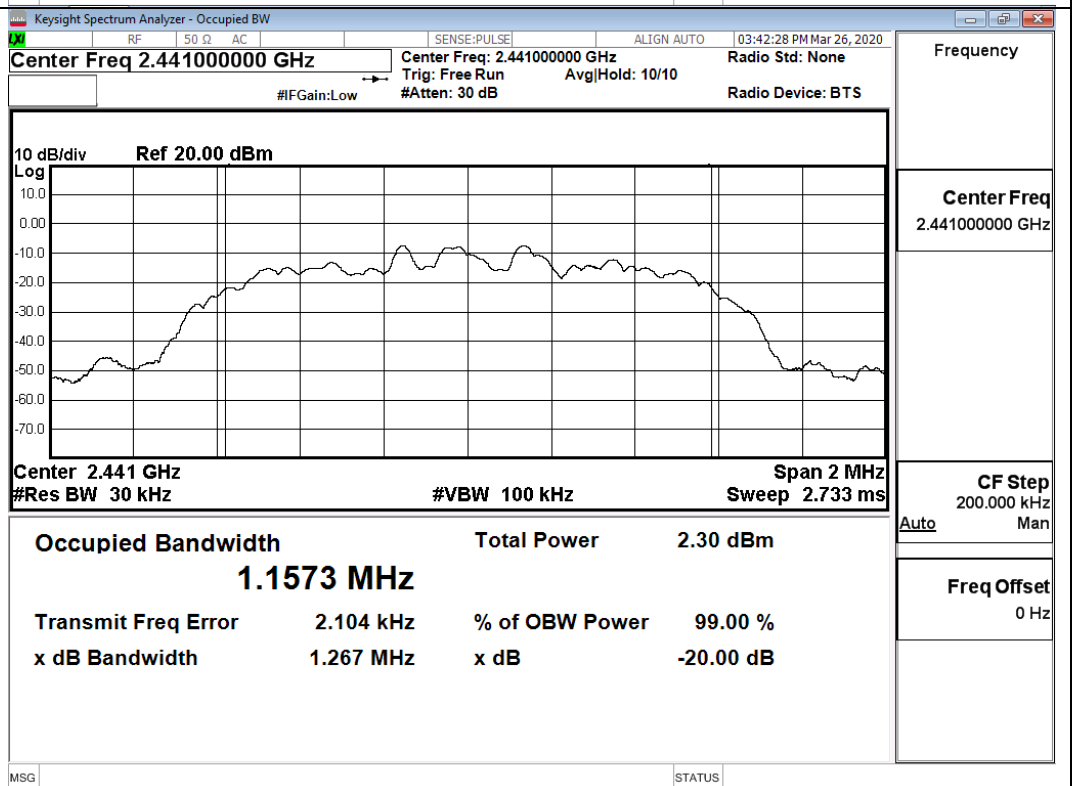
GFSK/HCH



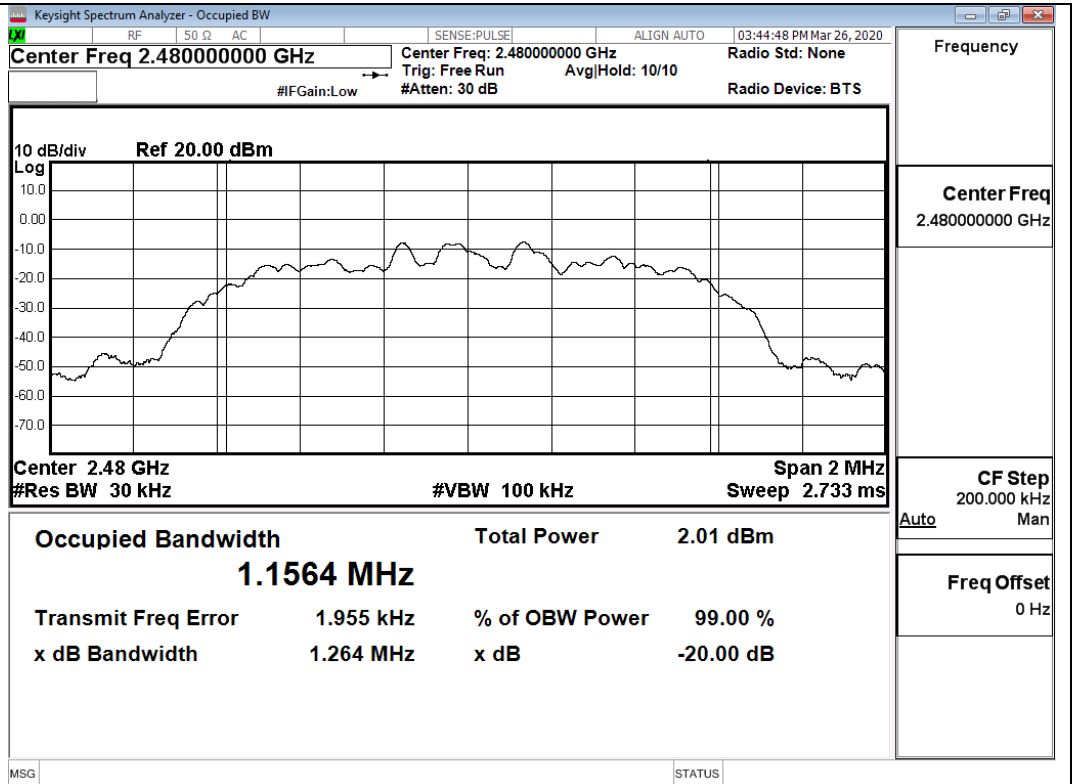
$\pi/4$ DQPSK/LCH



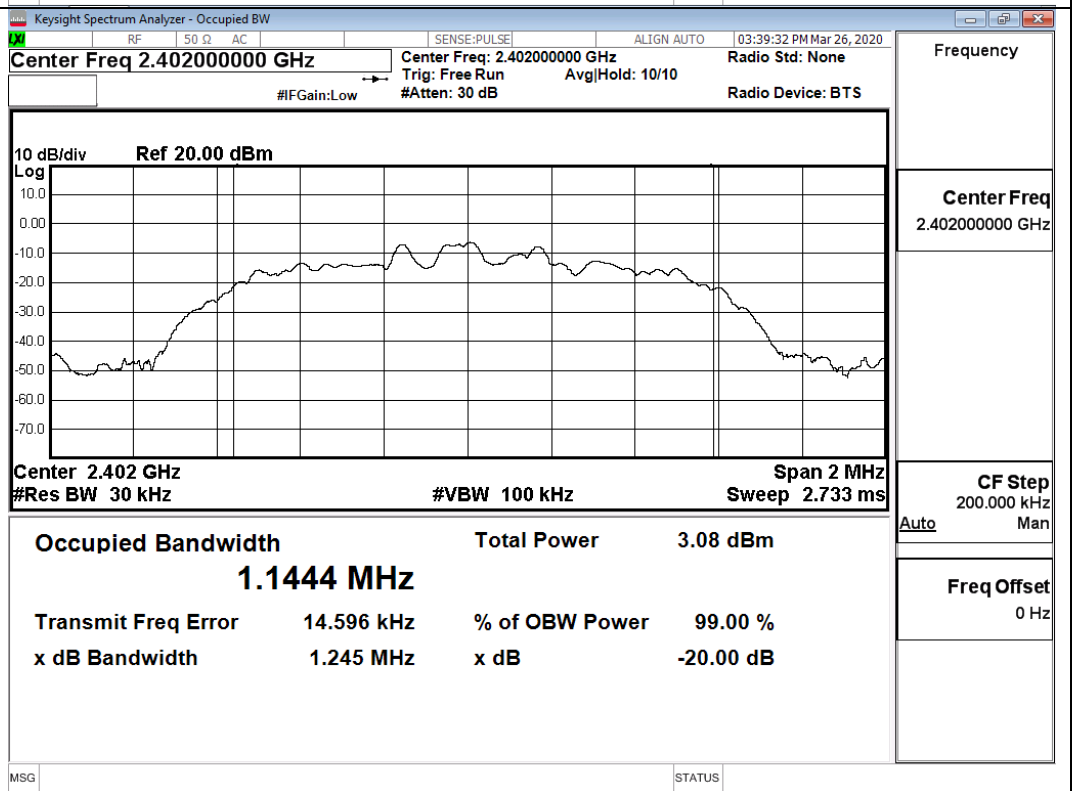
$\pi/4$ DQPSK/MCH



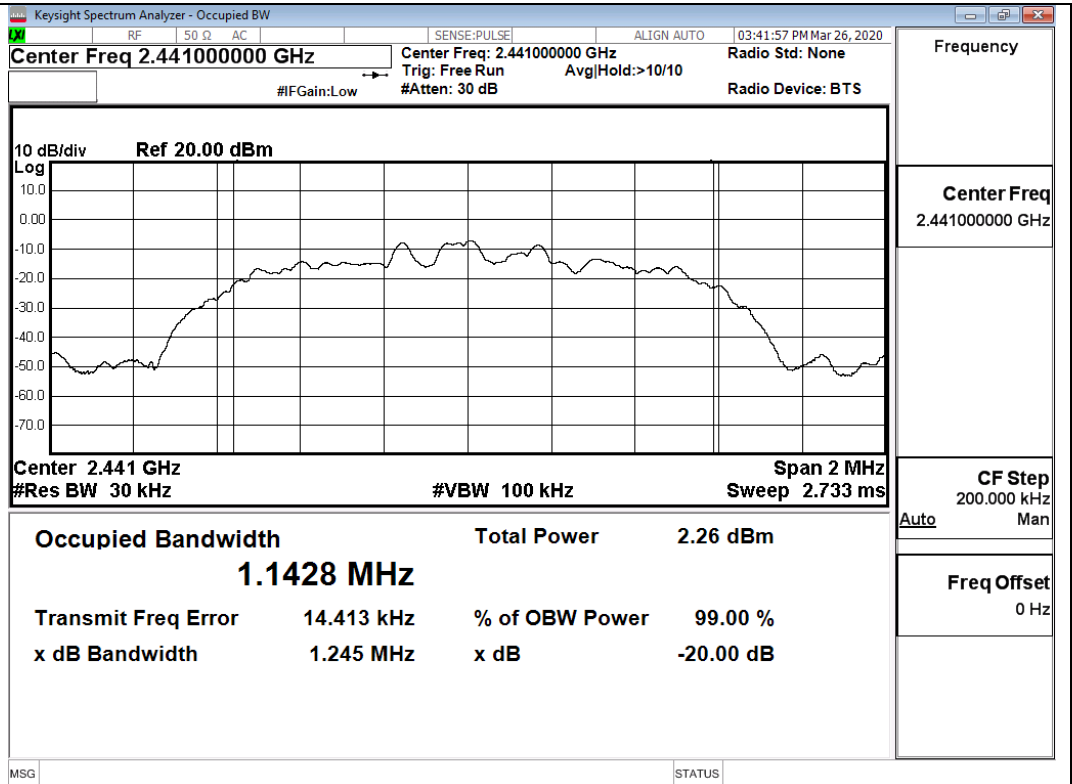
$\pi/4$ DQPSK/HCH



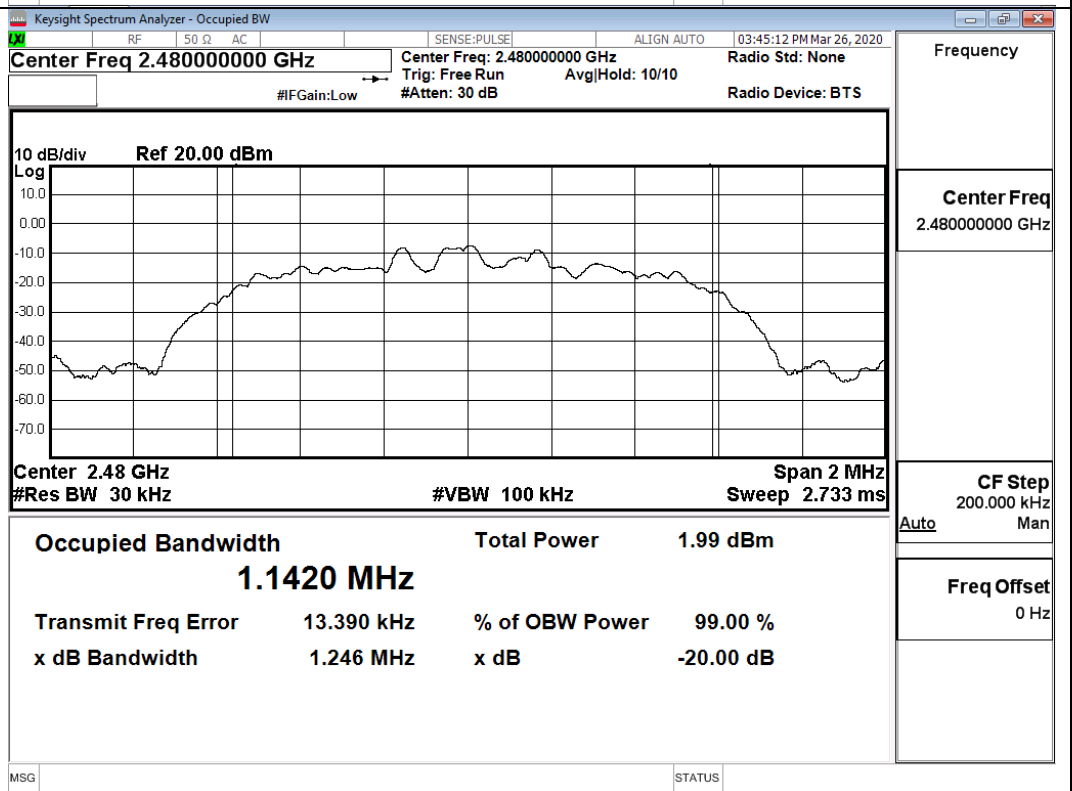
8-DPSK/LCH



8-DPSK/MCH

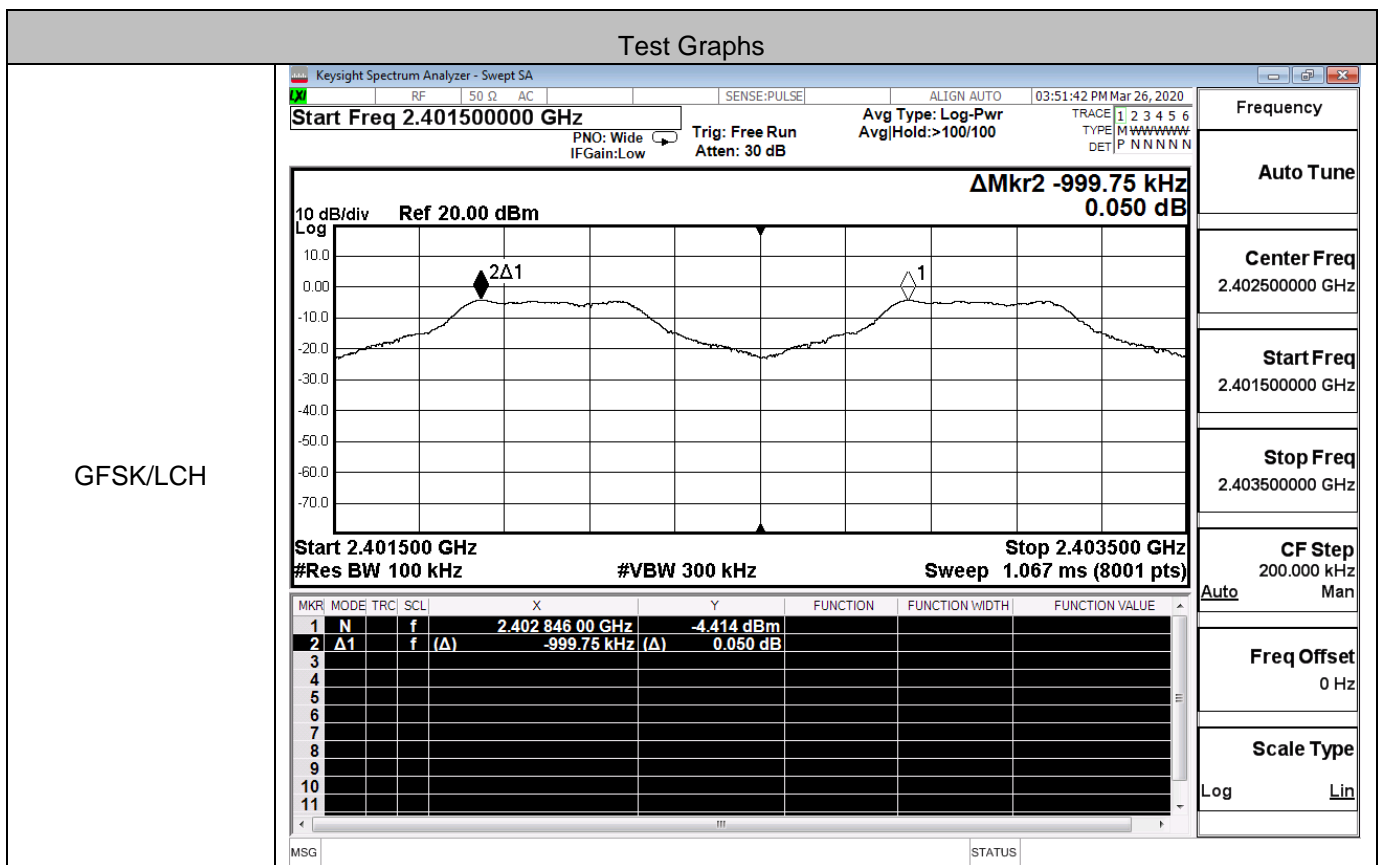


8-DPSK/HCH

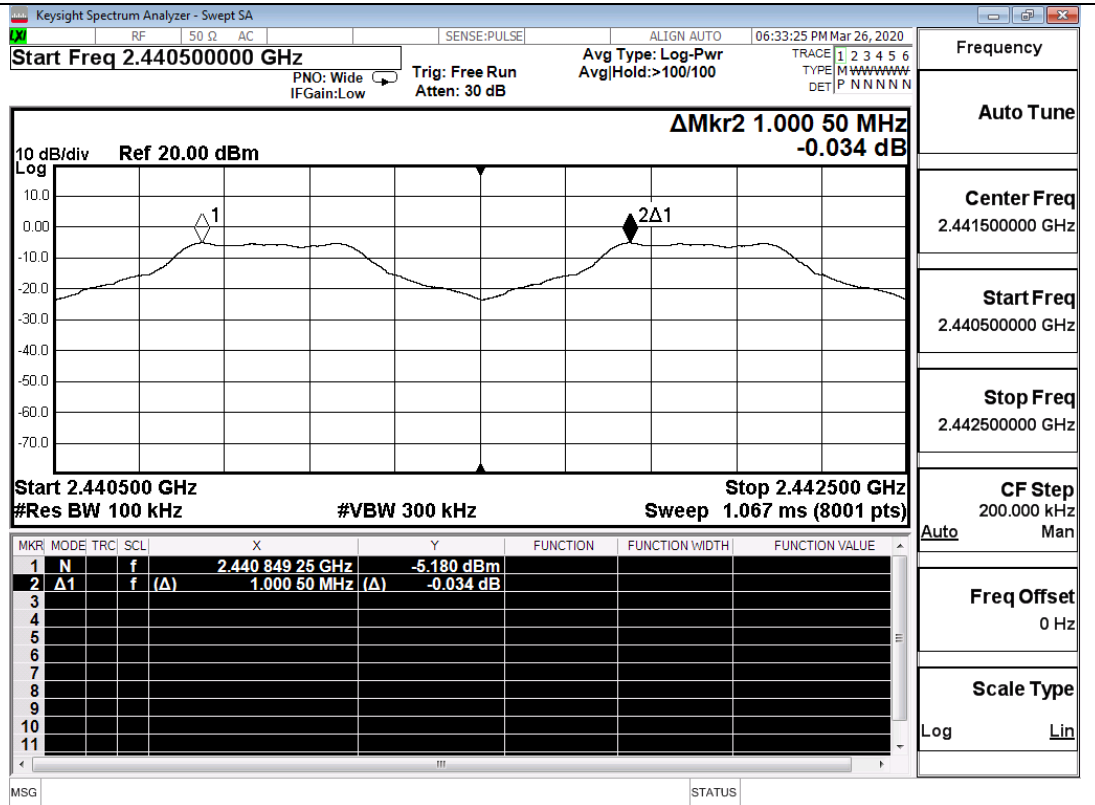


A.3 Carrier Frequency Separation

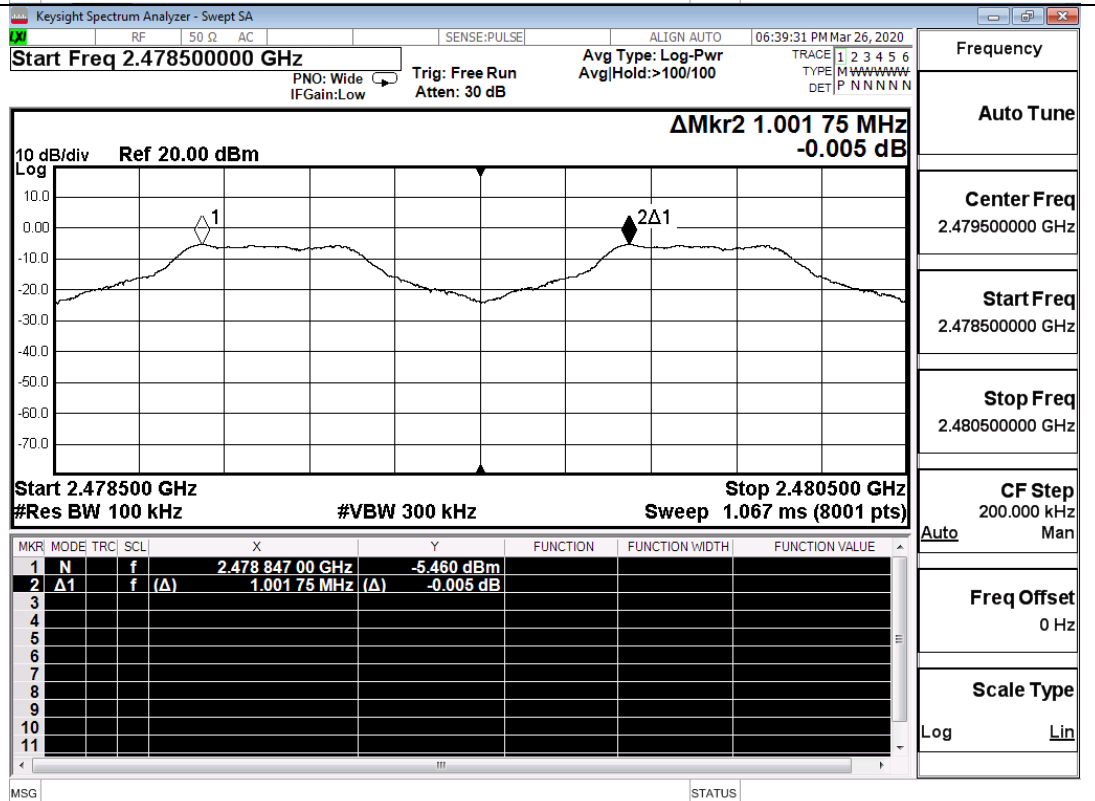
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	1.000	0.584	PASS
	MCH	1.001	0.584	PASS
	HCH	1.002	0.585	PASS
π/4DQPSK	LCH	1.005	0.843	PASS
	MCH	1.005	0.845	PASS
	HCH	1.000	0.843	PASS
8-DPSK	LCH	0.999	0.830	PASS
	MCH	1.003	0.830	PASS
	HCH	1.000	0.831	PASS



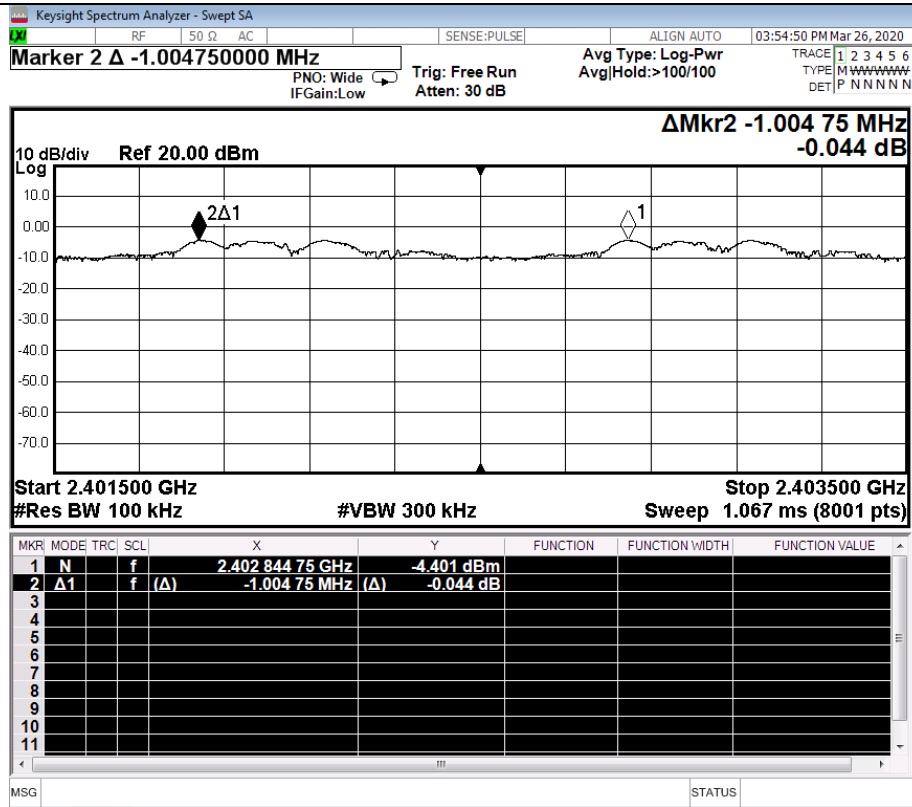
GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH



Peak Search

Next Peak

Next Pk Right

Next Pk Left

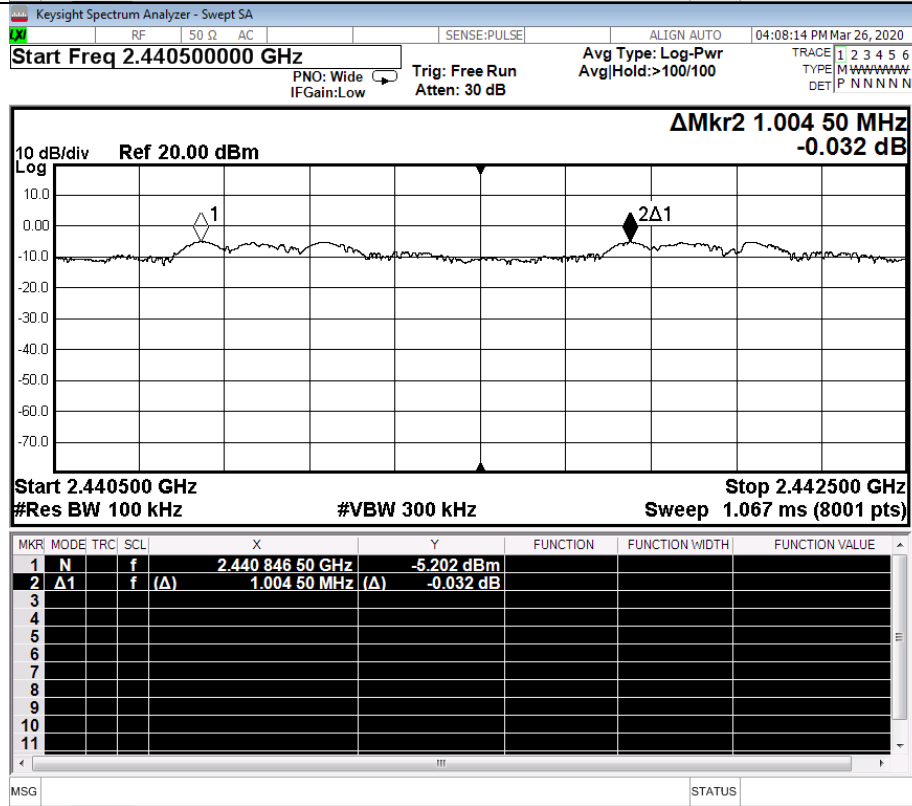
Marker Delta

Mkr→CF

Mkr→Ref Lvl

More
1 of 2

$\pi/4$ DQPSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

Start Freq
2.440500000 GHz

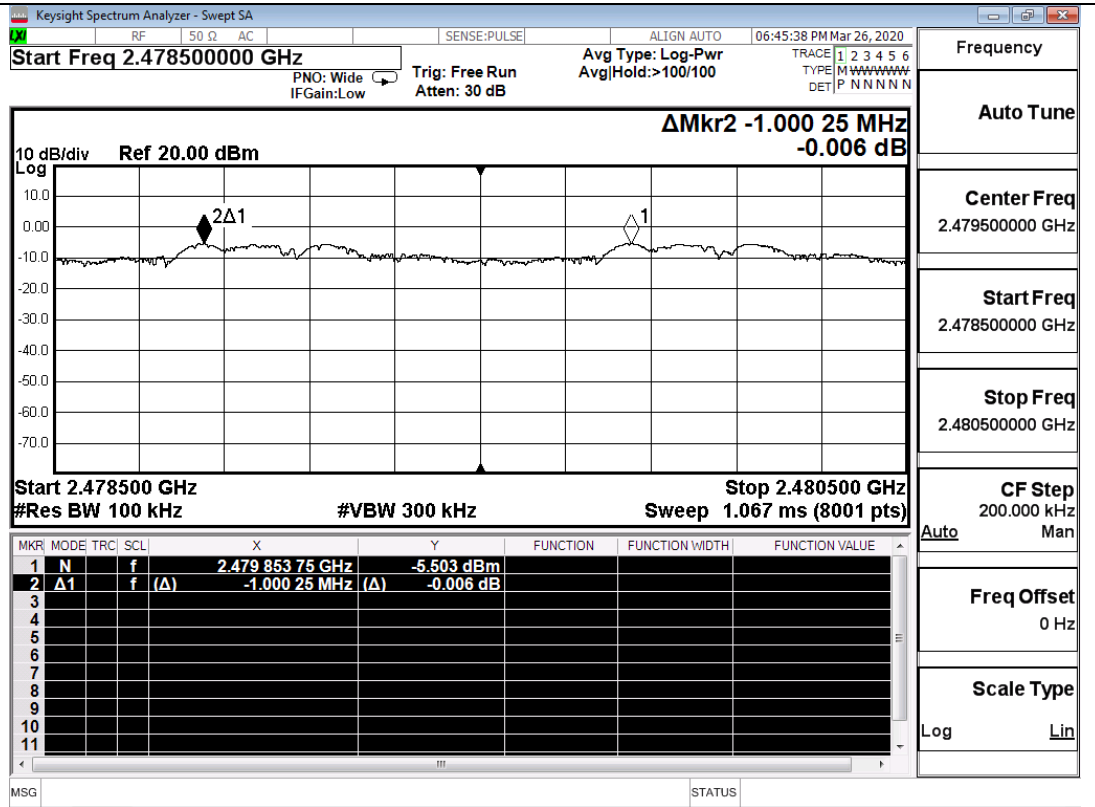
Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Auto Man

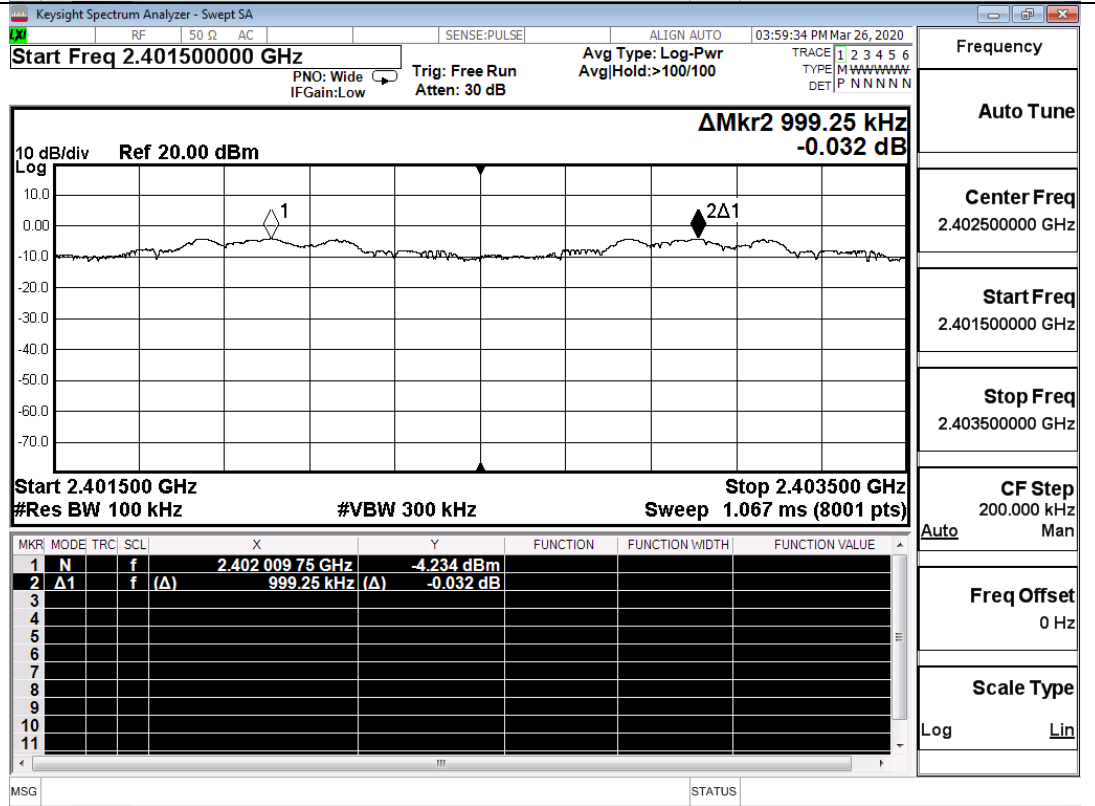
Freq Offset
0 Hz

Scale Type
Log Lin

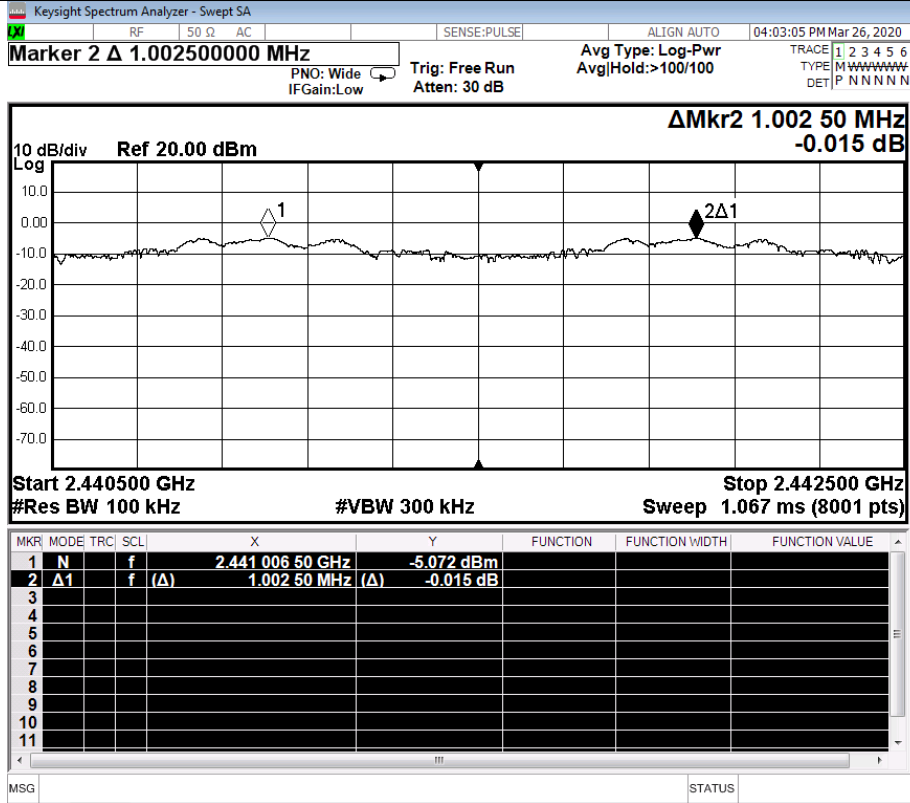
$\pi/4$ DQPSK/HCH



8-DPSK/LCH



8-DPSK/MCH



Peak Search

Next Peak

Next Pk Right

Next Pk Left

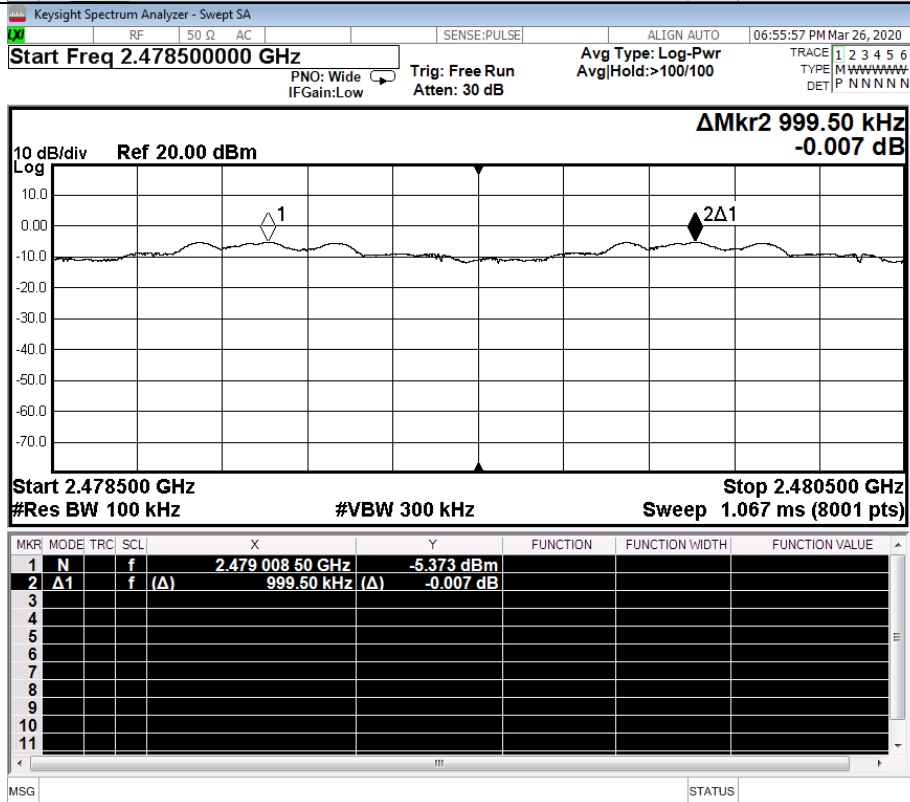
Marker Delta

Mkr→CF

Mkr→Ref Lvl

More
1 of 2

8-DPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

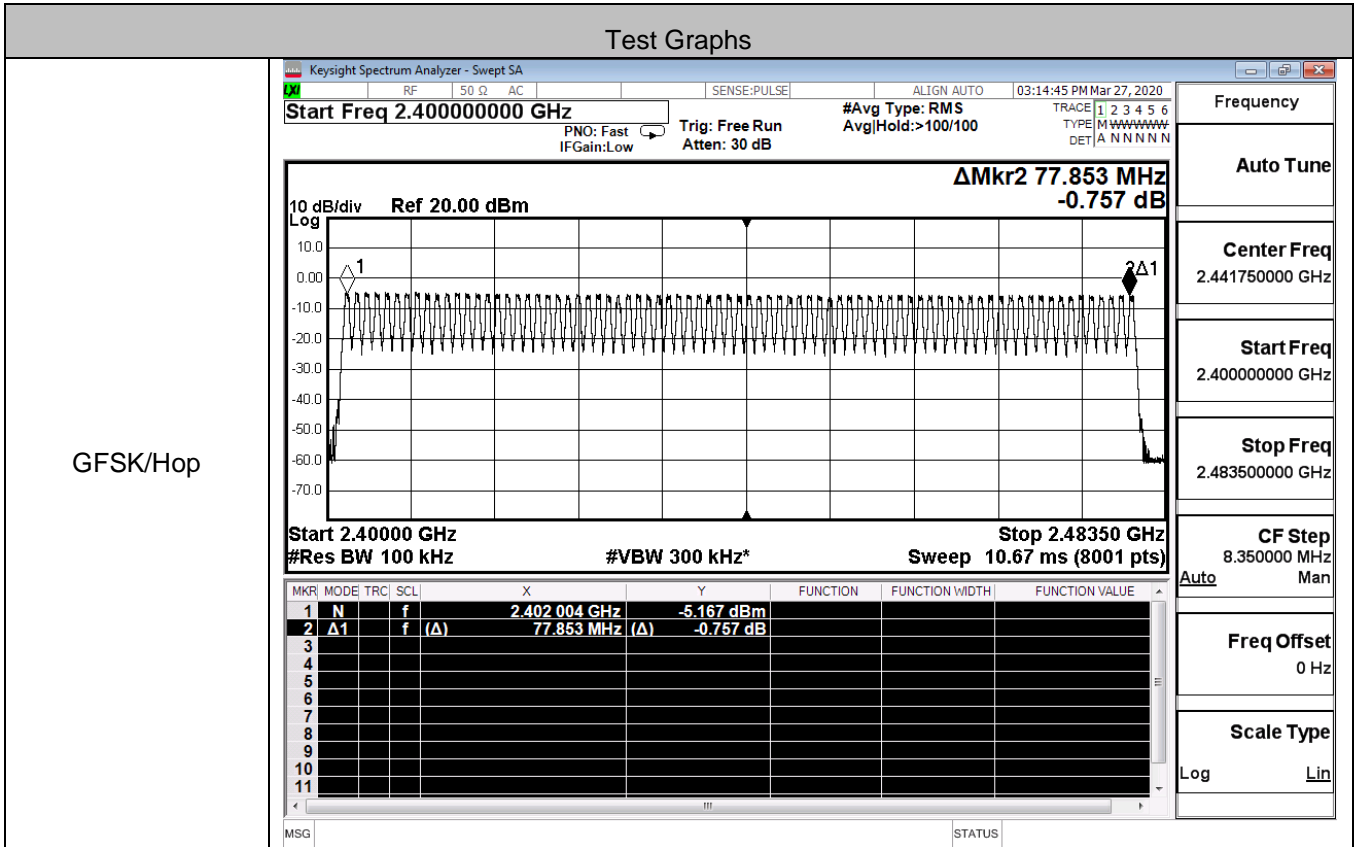
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

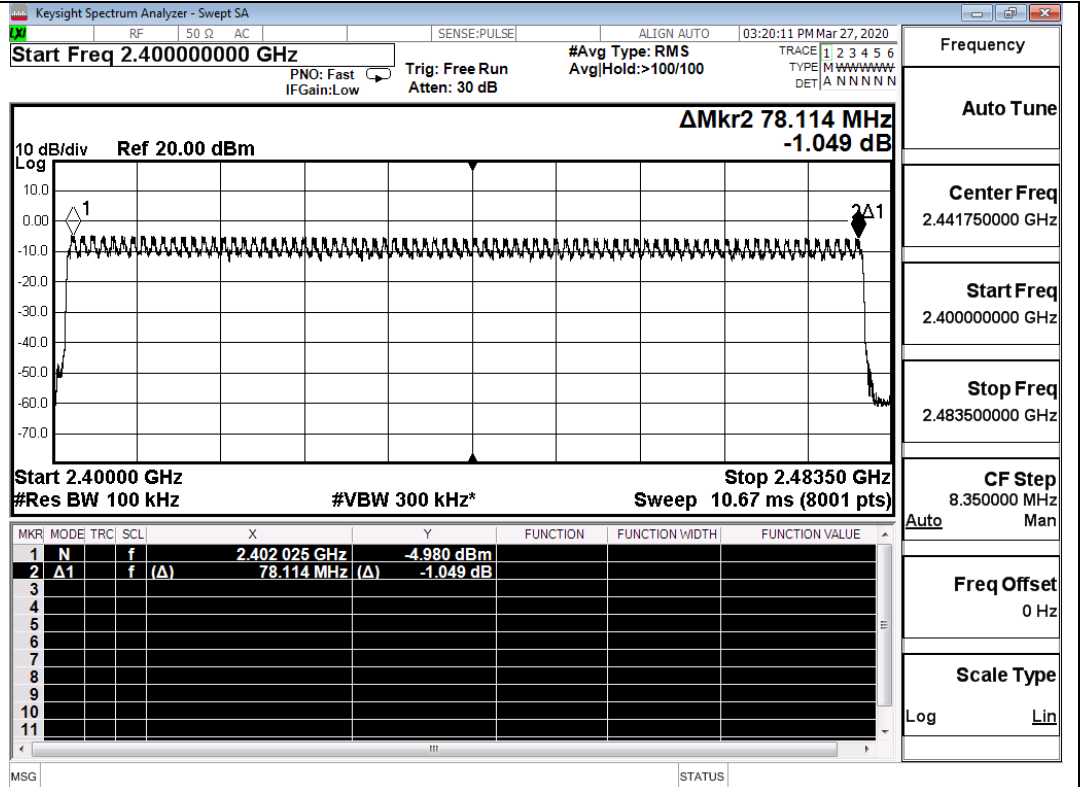
Scale Type
Log Lin

A.4 Hopping Channel Number

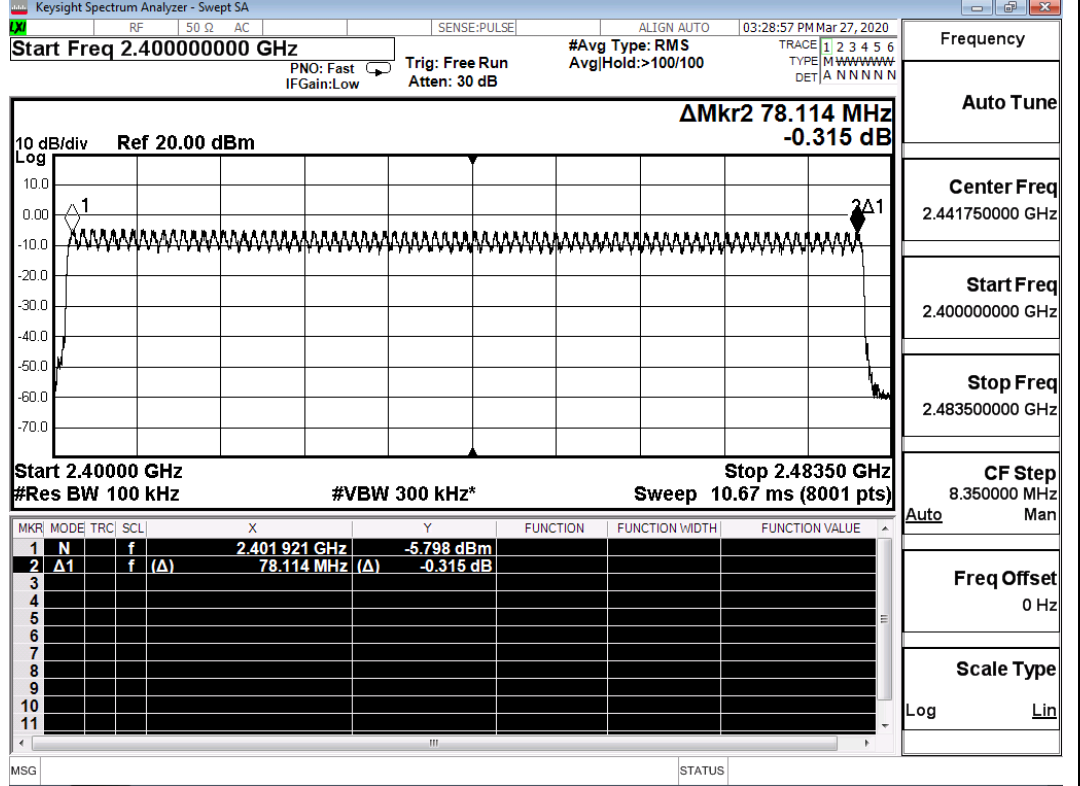
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8-DPSK	Hop	79	>=15	PASS



$\pi/4$ DQPSK/Hop

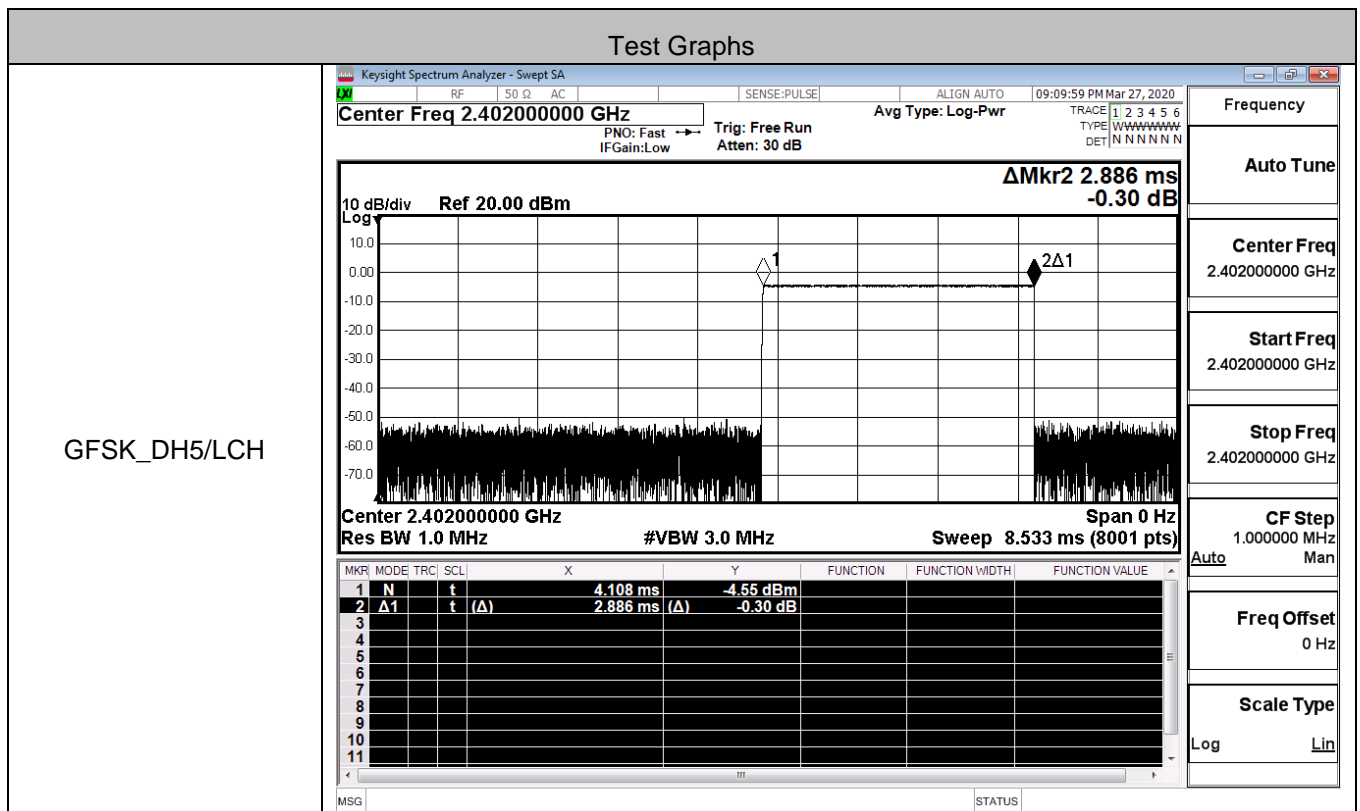


8-DPSK/Hop

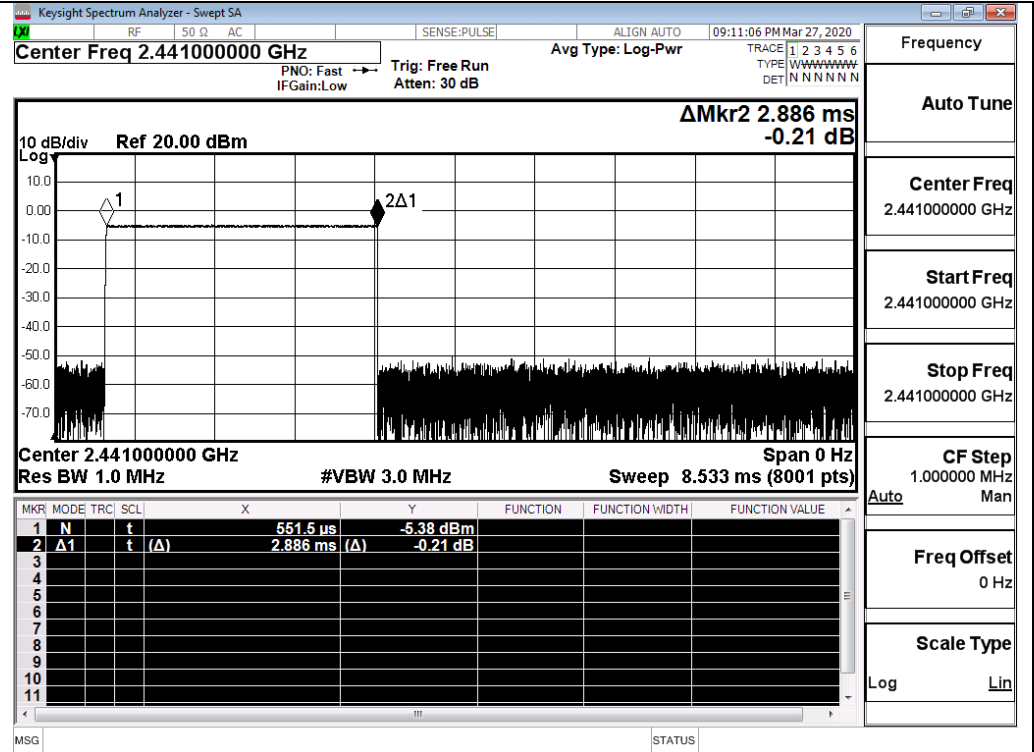


A.5 Dwell Time

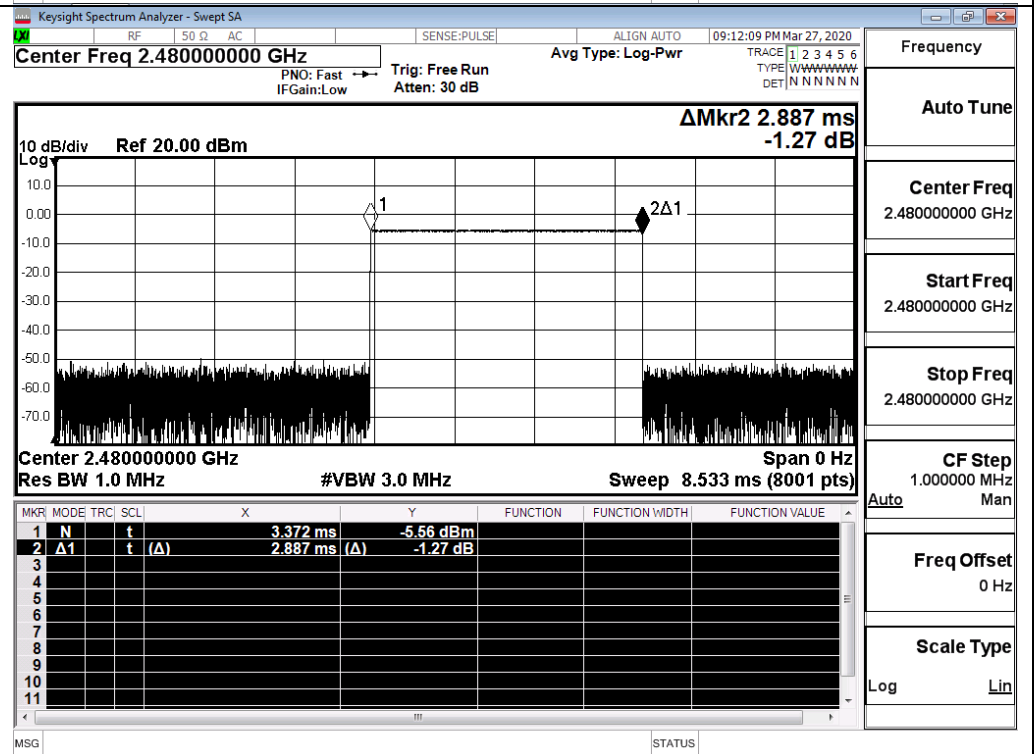
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.89	106.7	0.308	0.4	PASS
	2DH5	HCH	2.89	106.7	0.308	0.4	PASS
8-DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.90	106.7	0.309	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS



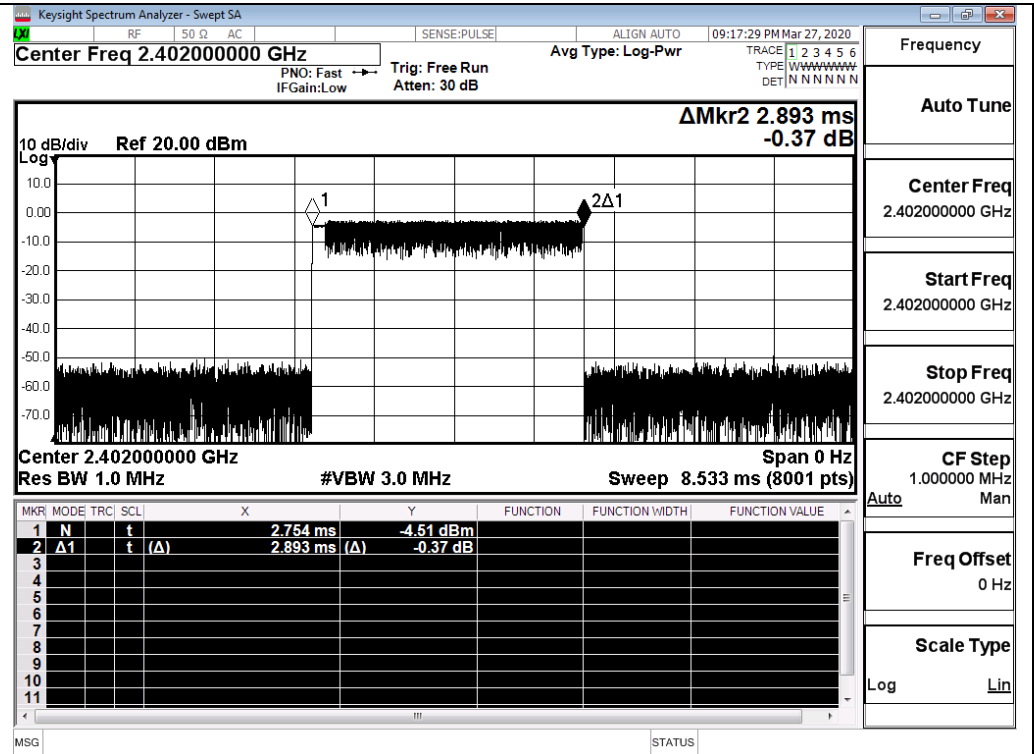
GFSK_DH5/MCH



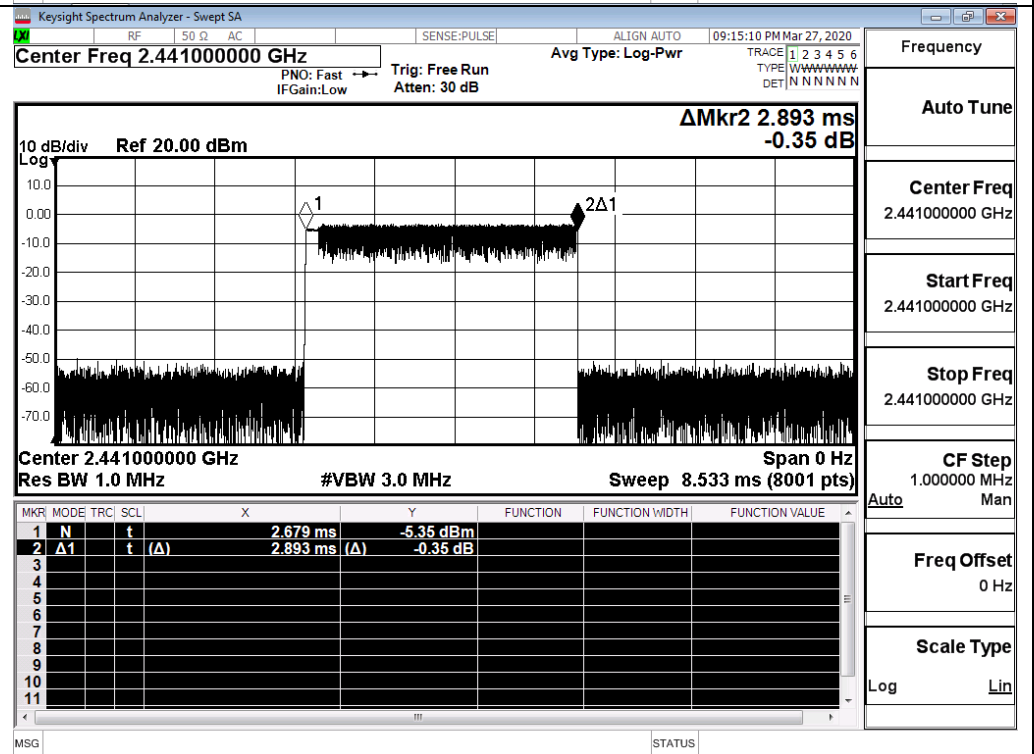
GFSK_DH5/HCH



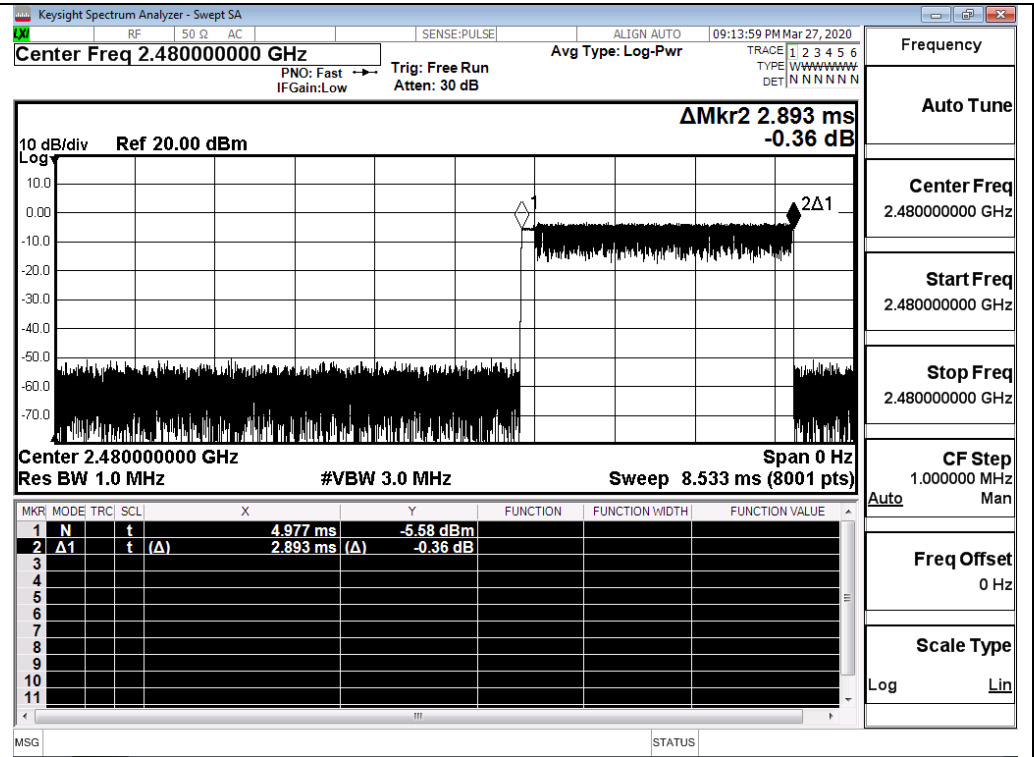
$\pi/4$ DQPSK
_2DH5/LCH



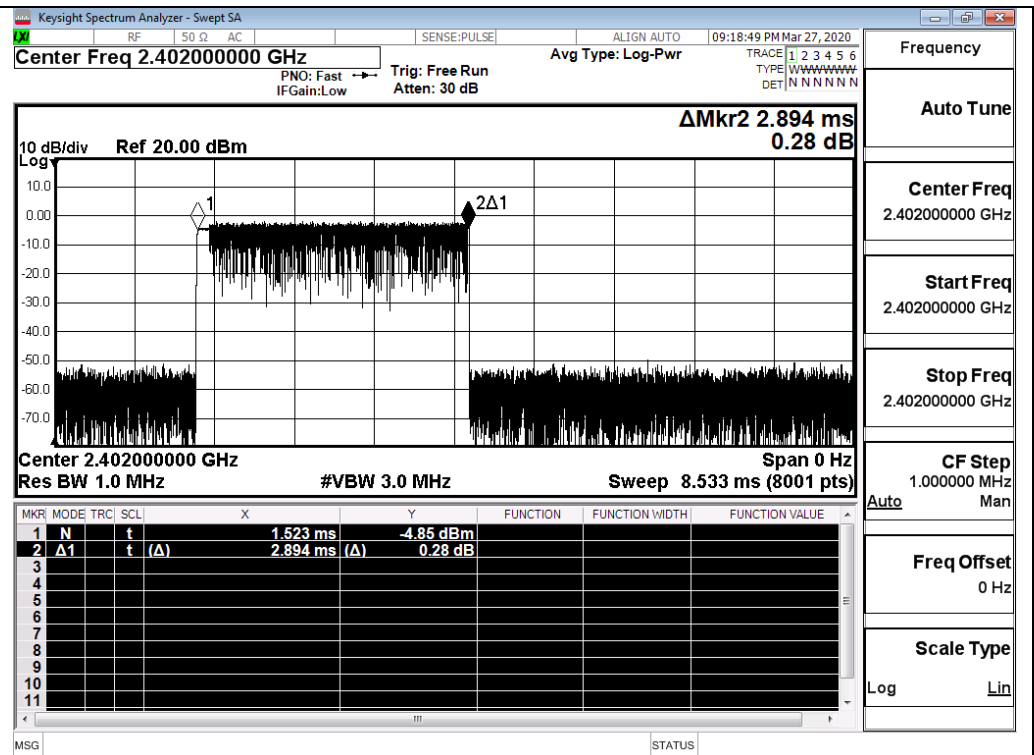
$\pi/4$ DQPSK
_2DH5/MCH



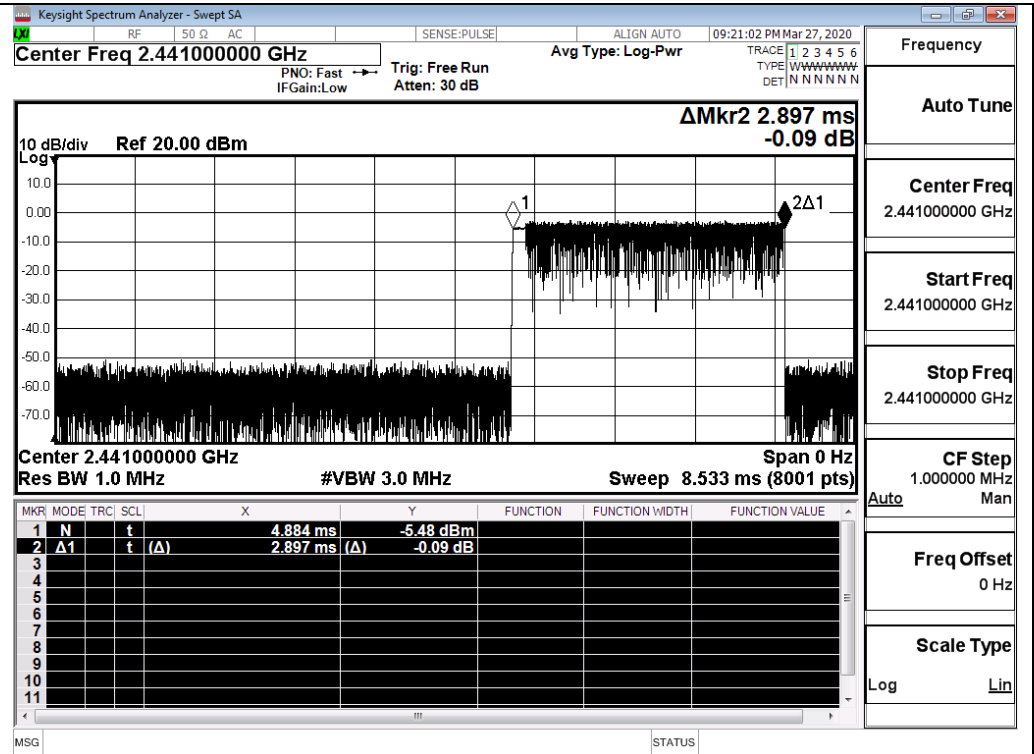
$\pi/4$ DQPSK
_2DH5/HCH



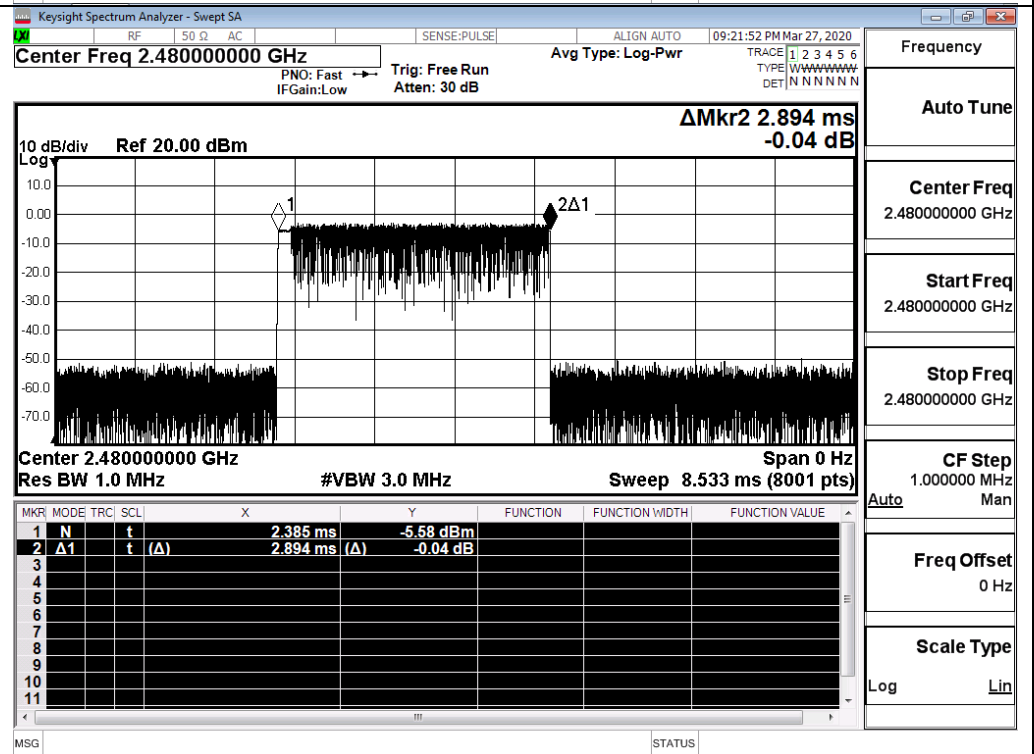
8-DPSK_3DH5/LCH



8-DPSK_3DH5/MCH



8-DPSK_3DH5/HCH

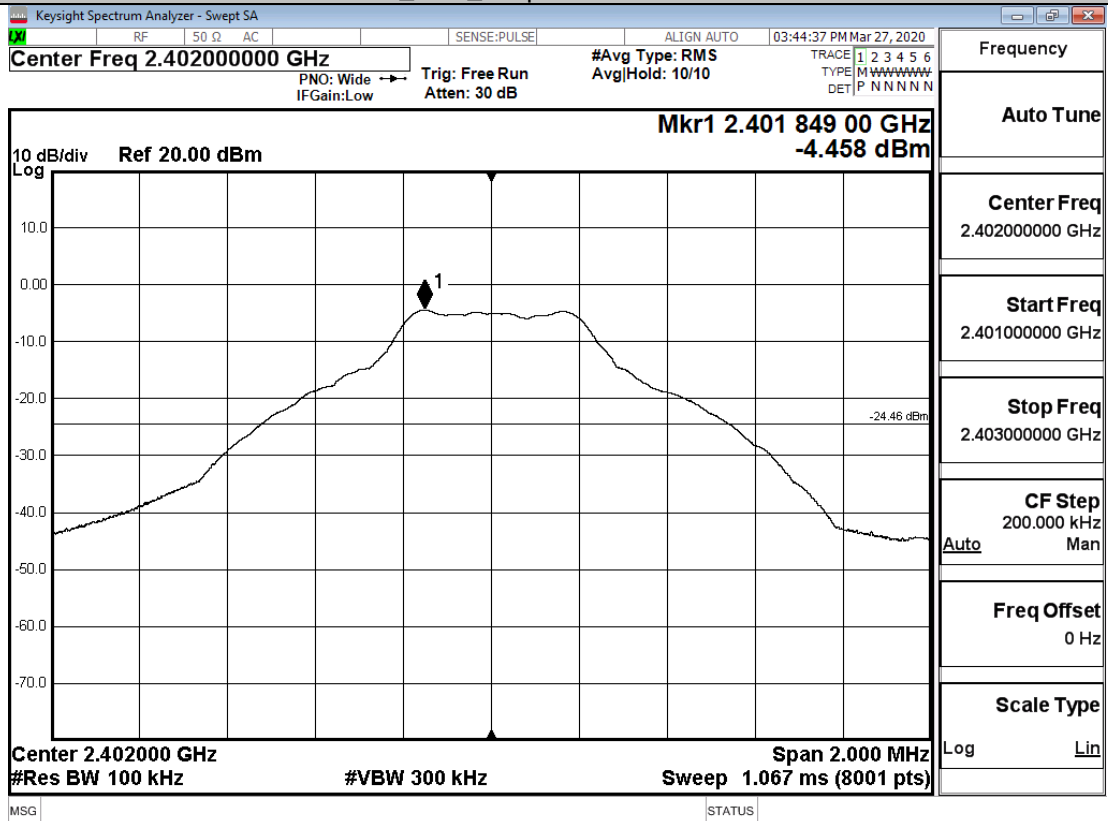


A.6 RF Conducted Spurious Emissions

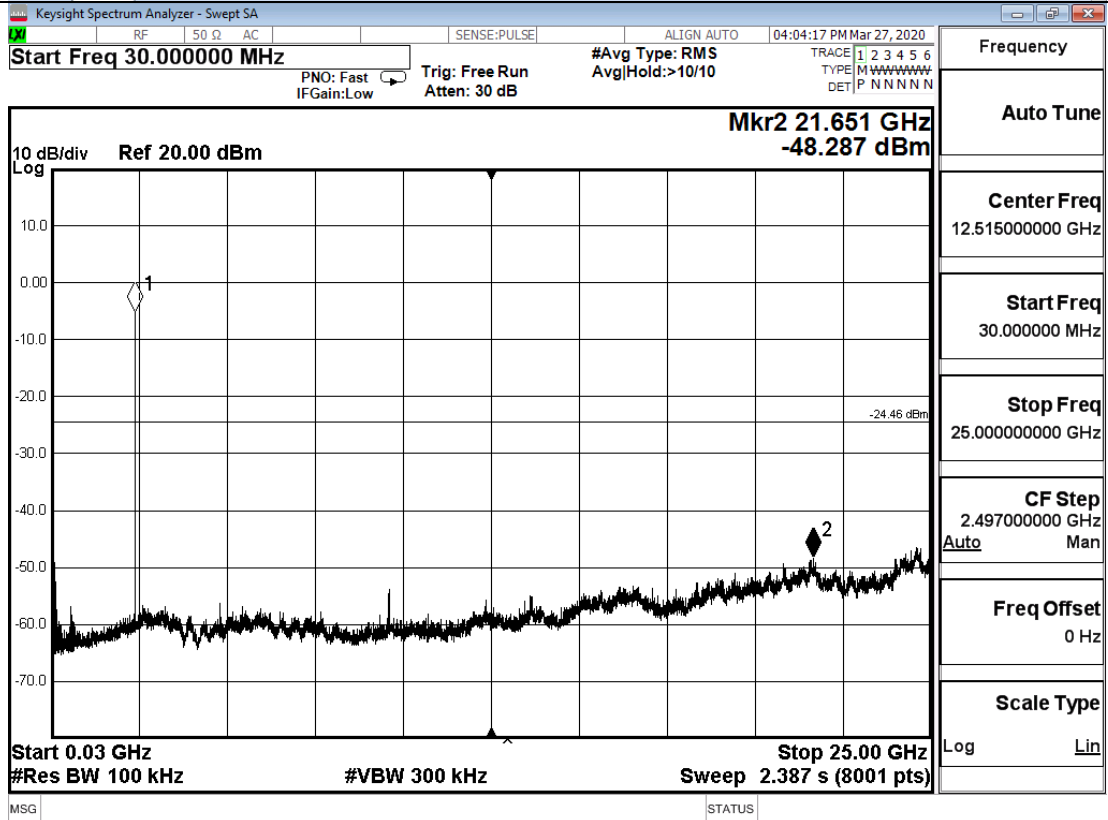
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.458	-48.287	-24.46	PASS
	MCH	-5.380	-47.956	-25.38	PASS
	HCH	-5.679	-49.210	-25.68	PASS
$\pi/4$ DQPSK	LCH	-4.491	-48.690	-24.49	PASS
	MCH	-5.382	-47.574	-25.38	PASS
	HCH	-5.689	-45.258	-25.69	PASS
8-DPSK	LCH	-4.379	-49.236	-24.38	PASS
	MCH	-5.263	-52.414	-25.26	PASS
	HCH	-5.473	-48.492	-25.47	PASS

GFSK_LCH_Graphs

Pref

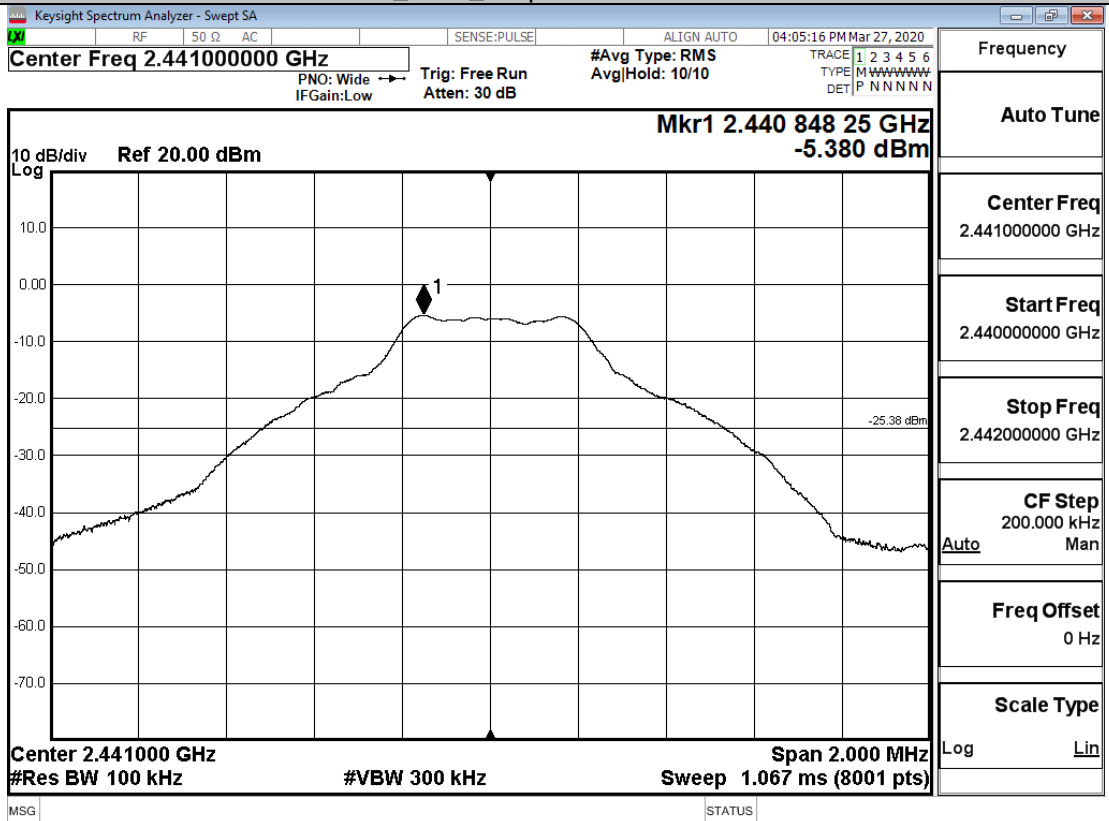


Puw

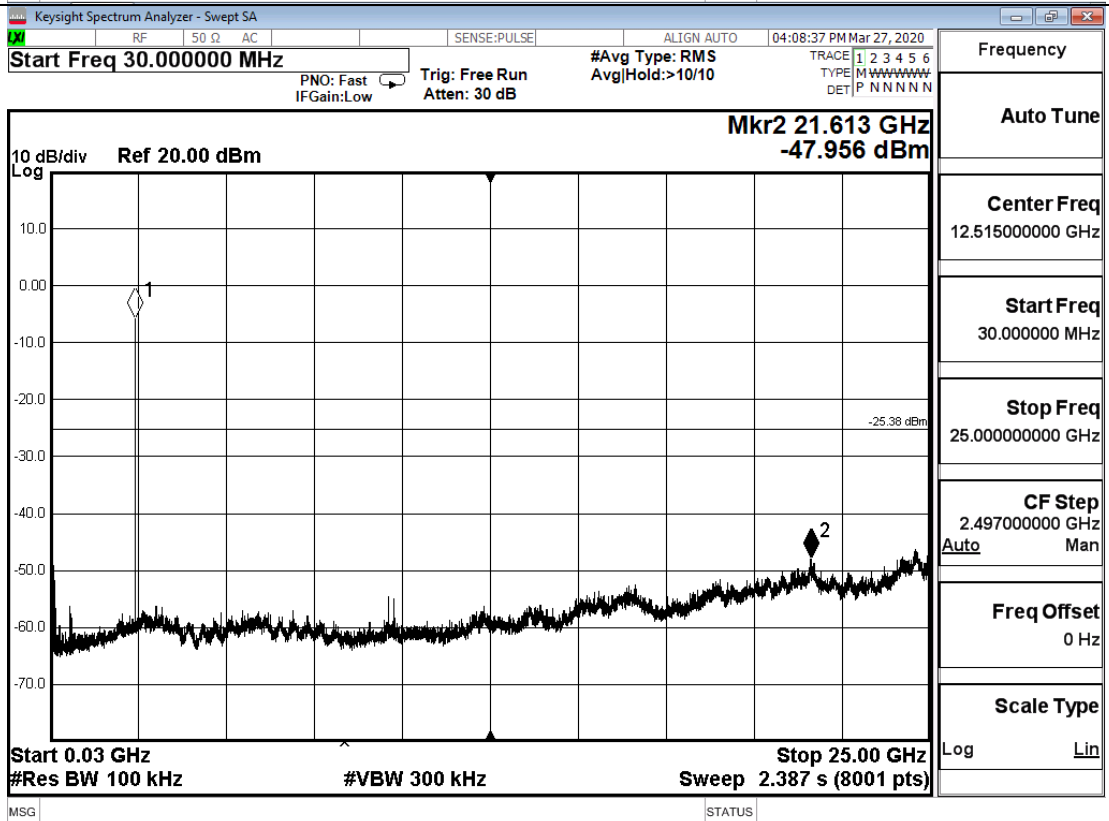


GFSK_MCH_Graphs

Pref

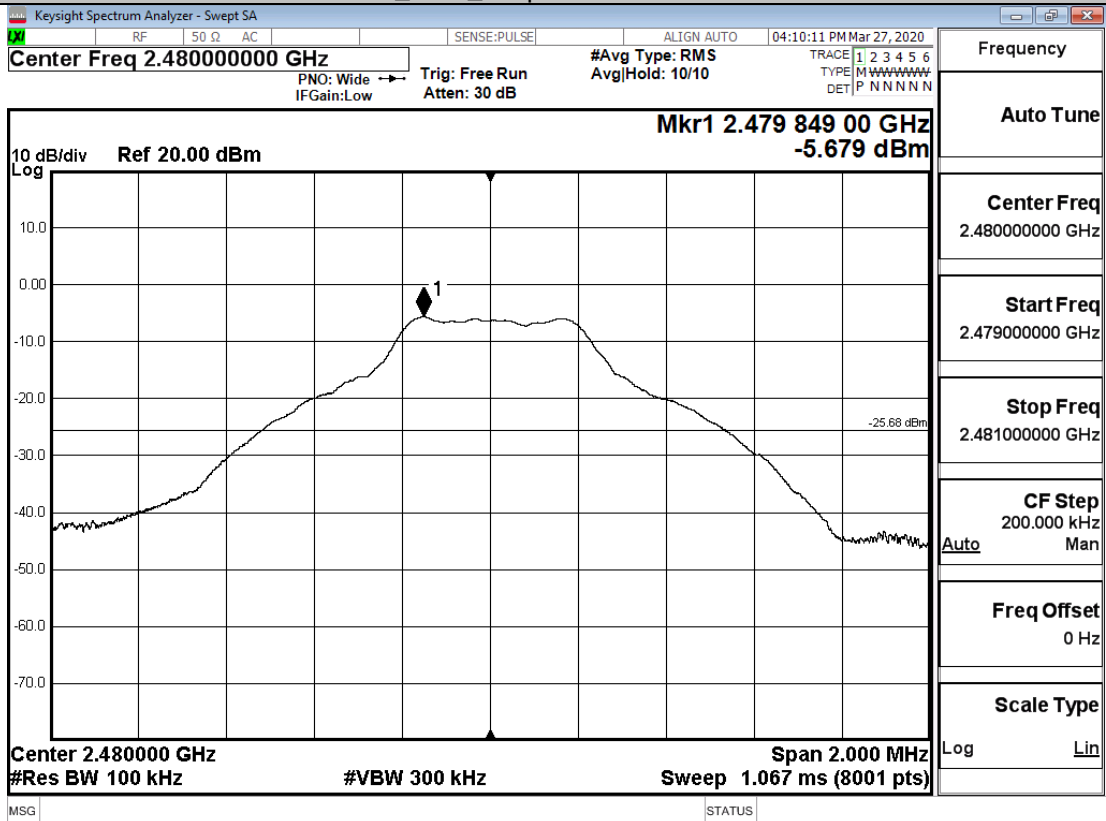


Puw

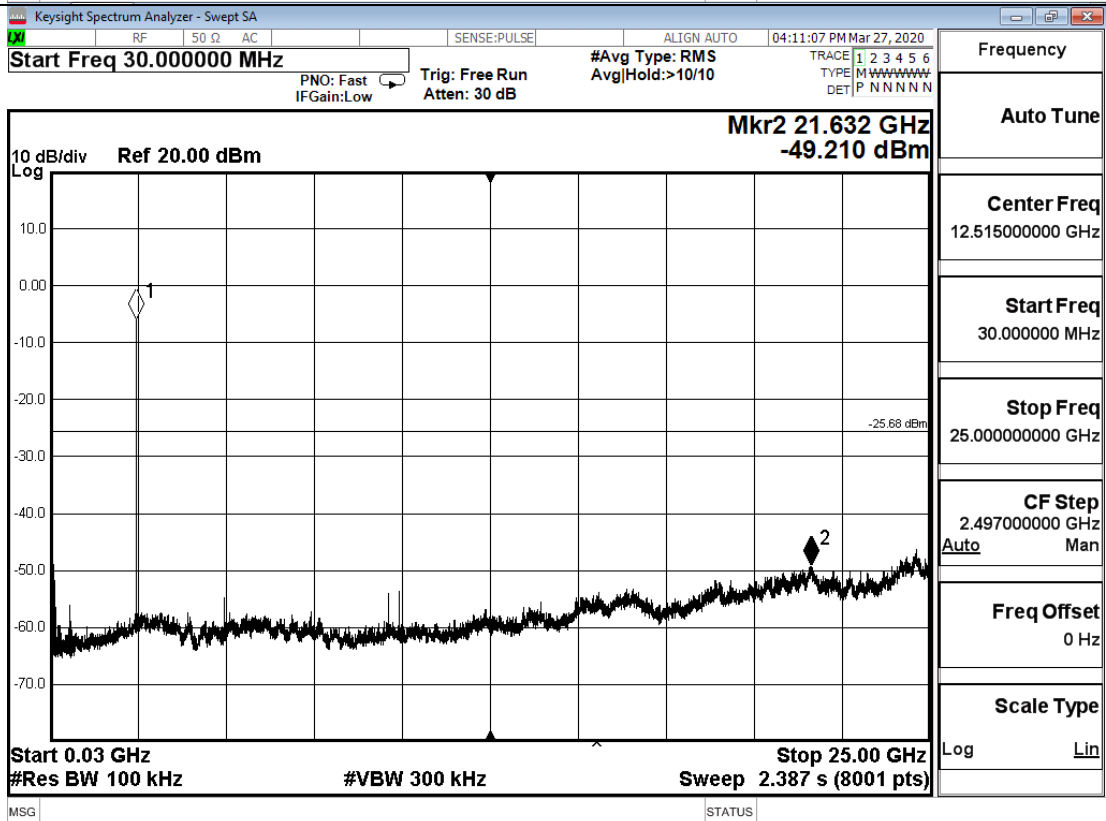


GFSK_HCH_Graphs

Pref

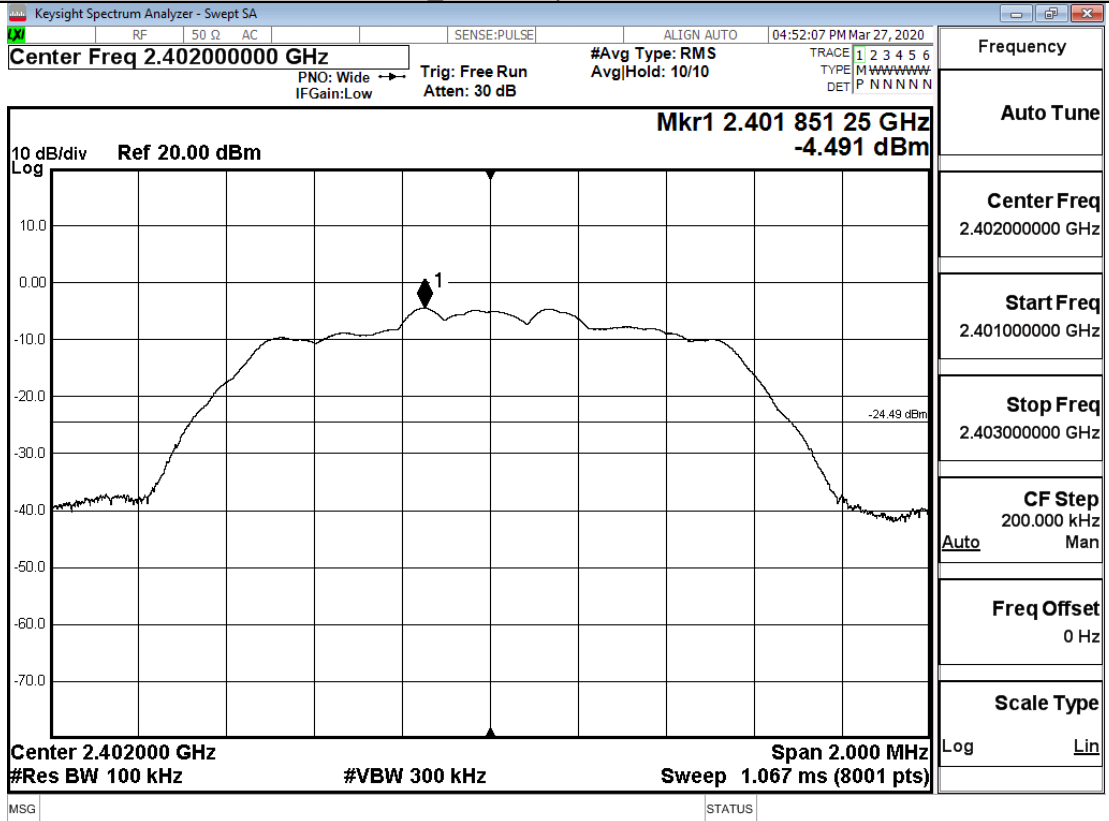


Puw

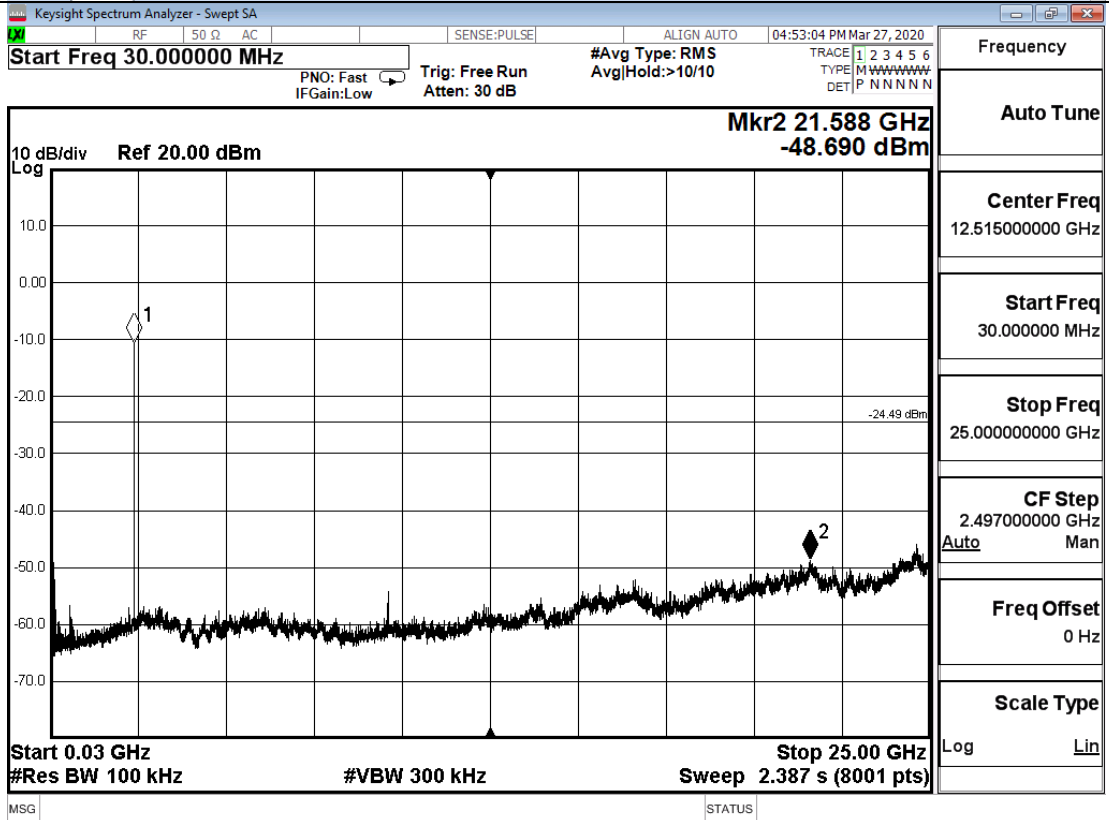


$\pi/4$ DQPSK_LCH_Graphs

Pref

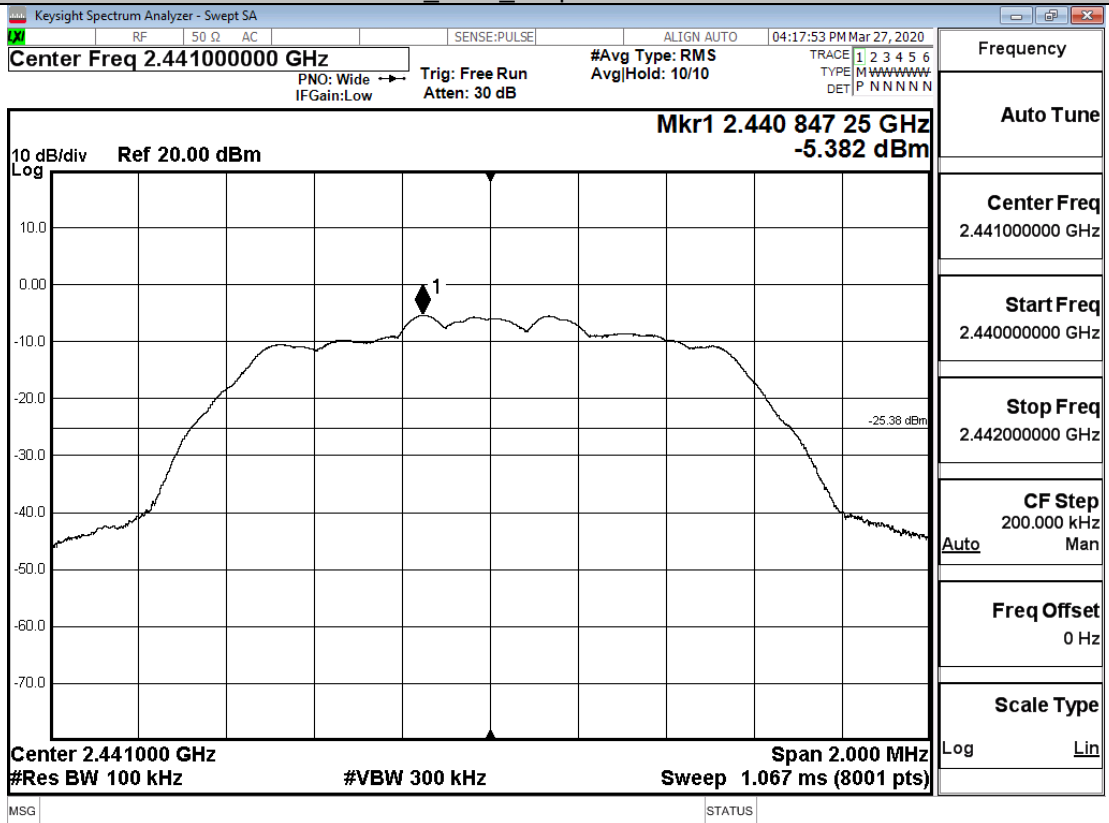


Puw

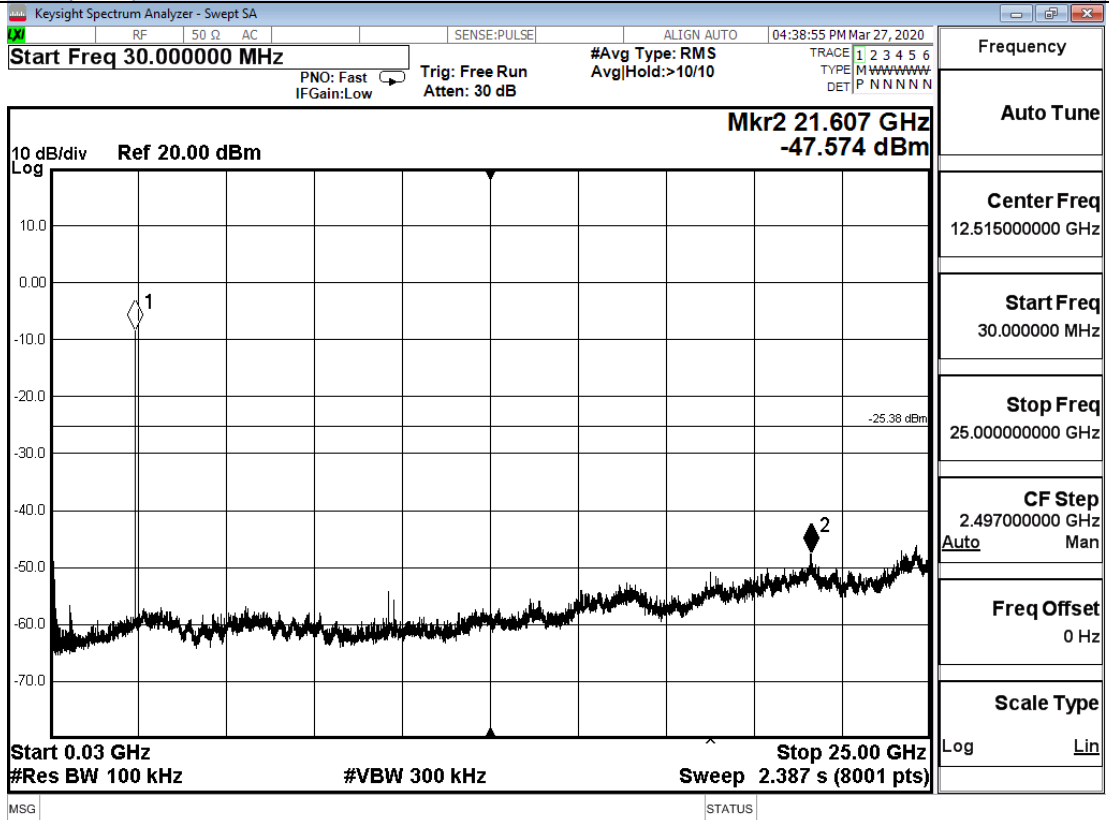


$\pi/4$ DQPSK_MCH_Graphs

Pref

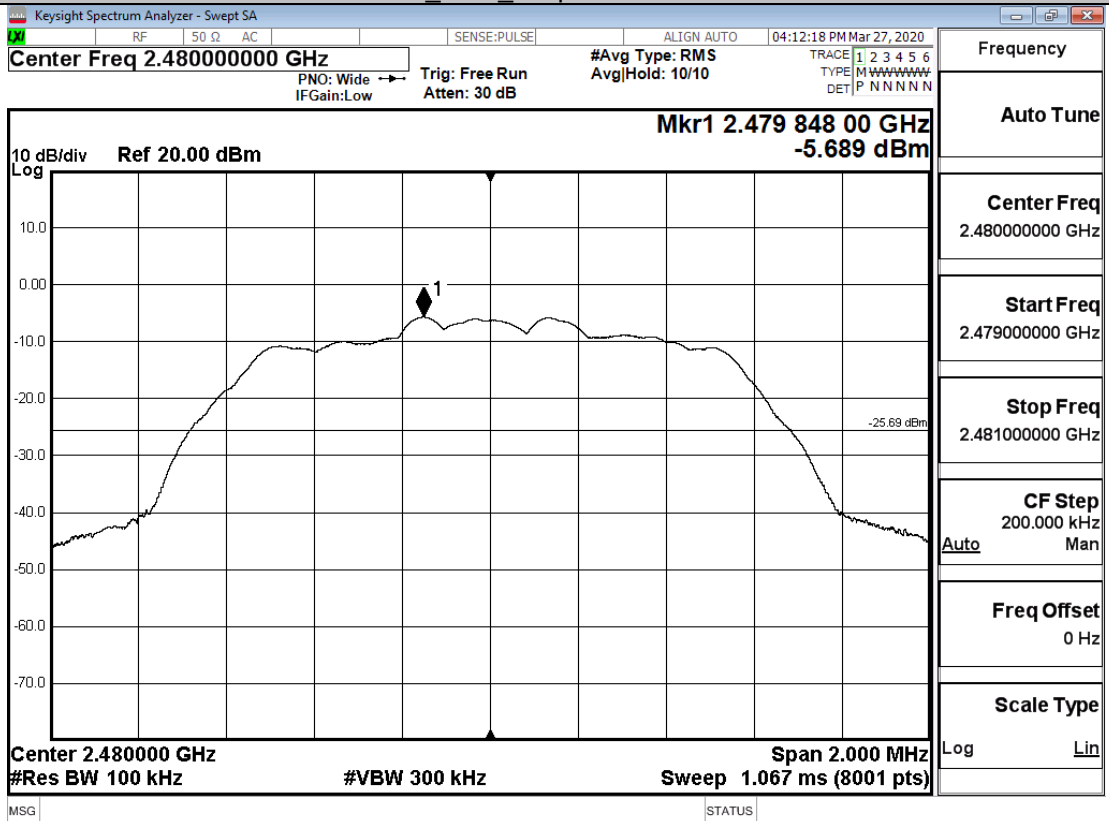


Puw

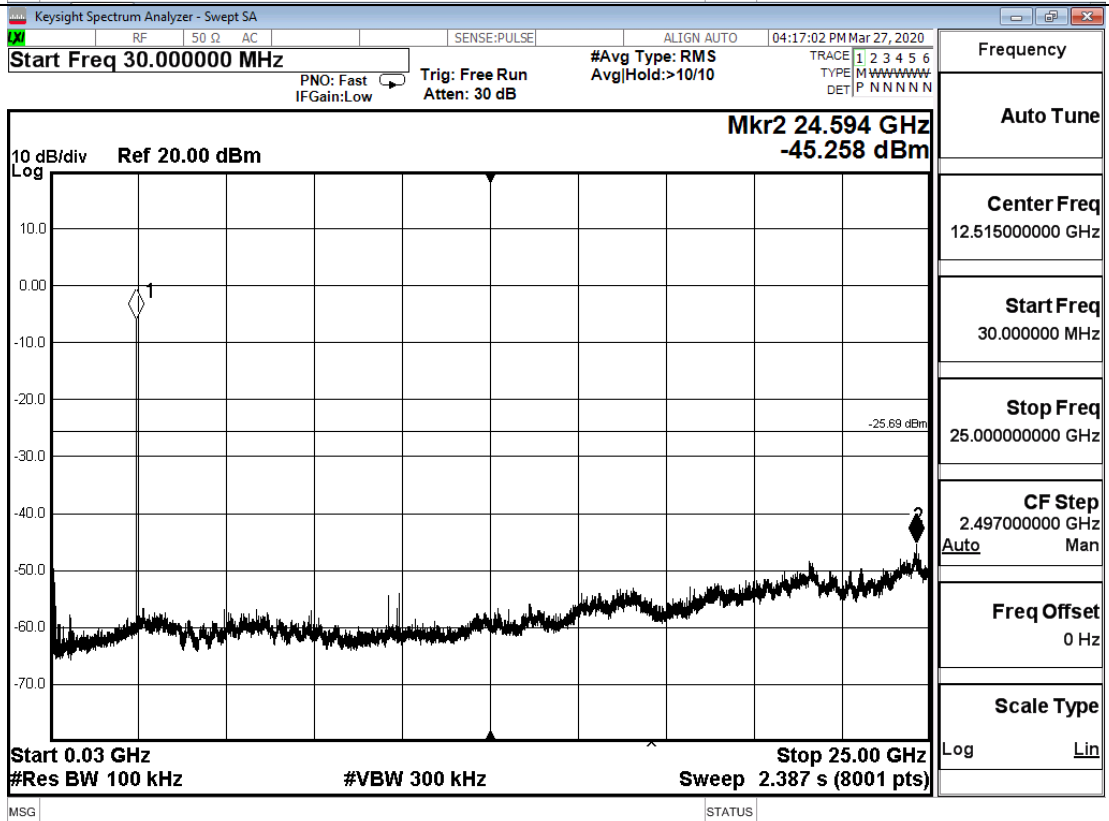


$\pi/4$ DQPSK_HCH_Graphs

Pref

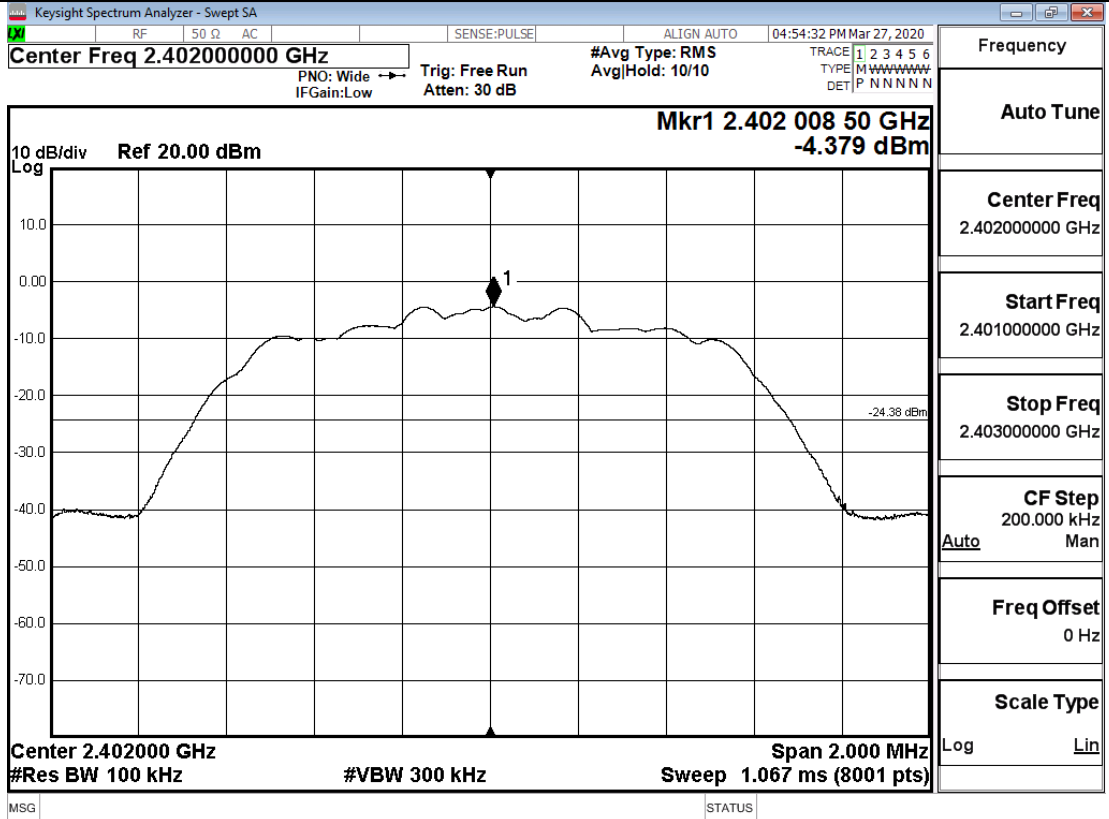


Puw

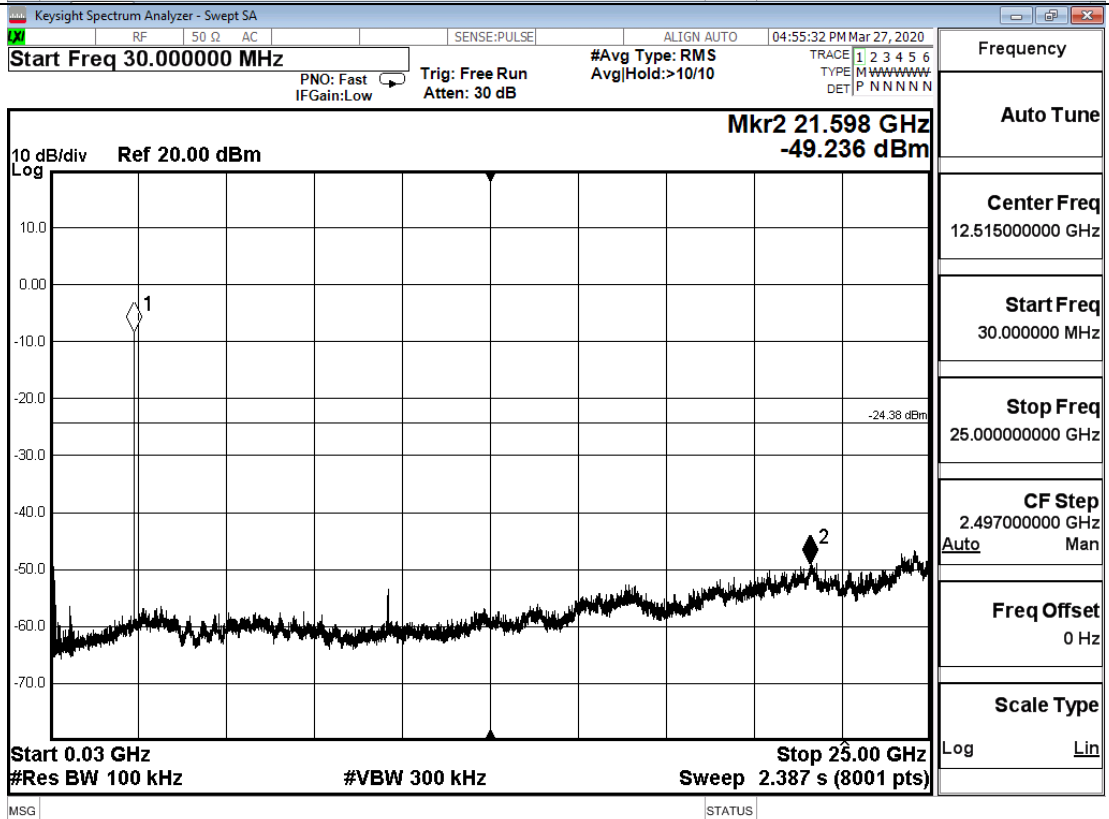


8-DPSK_LCH_Graphs

Pref

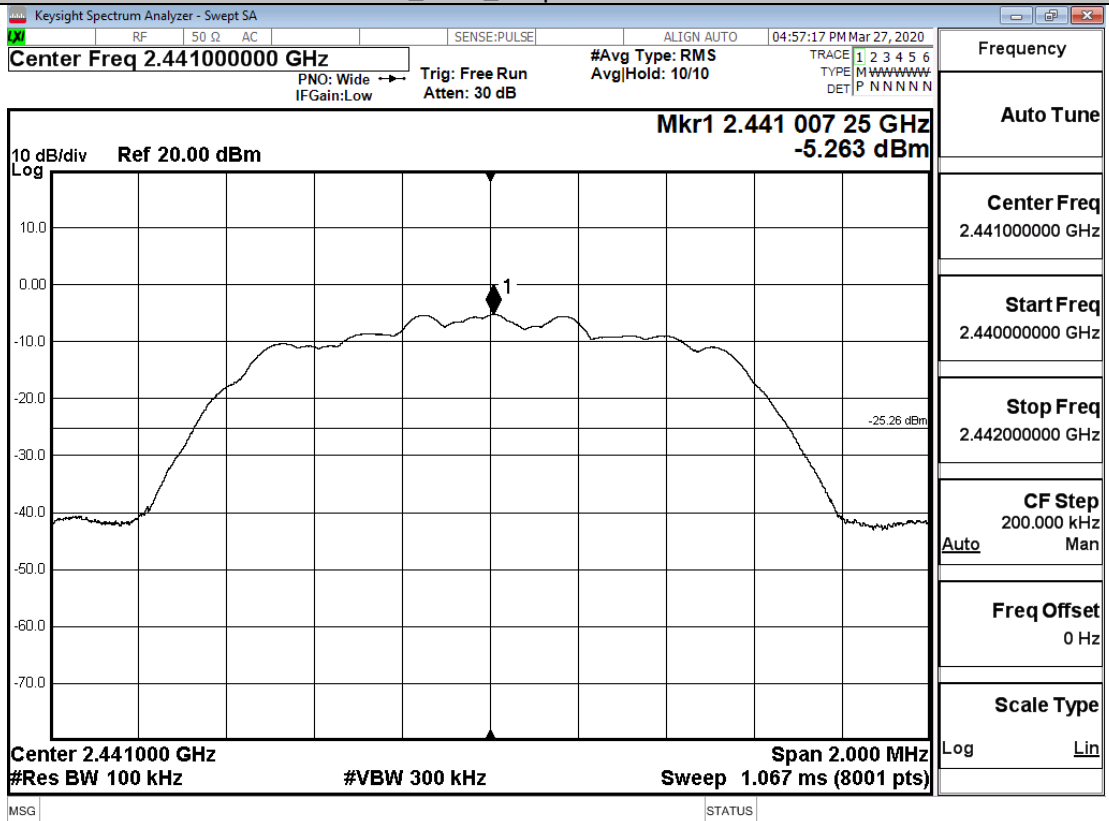


Puw

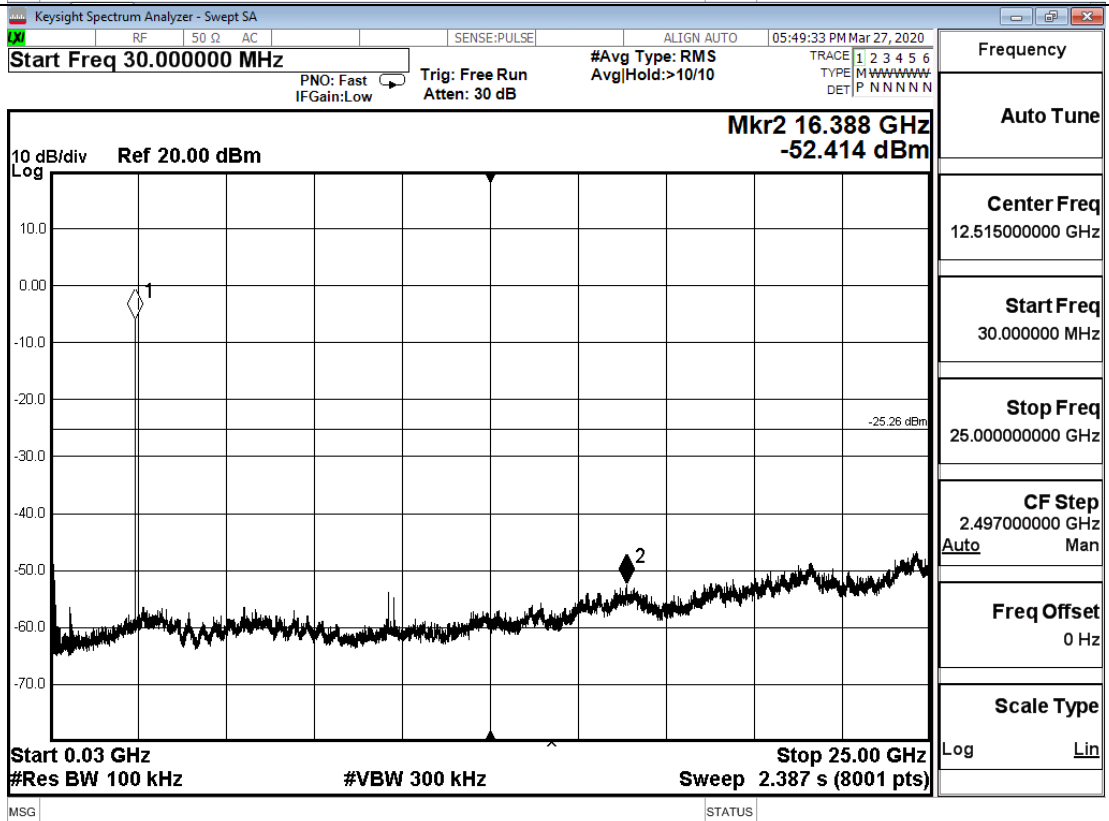


8-DPSK_MCH_Graphs

Pref

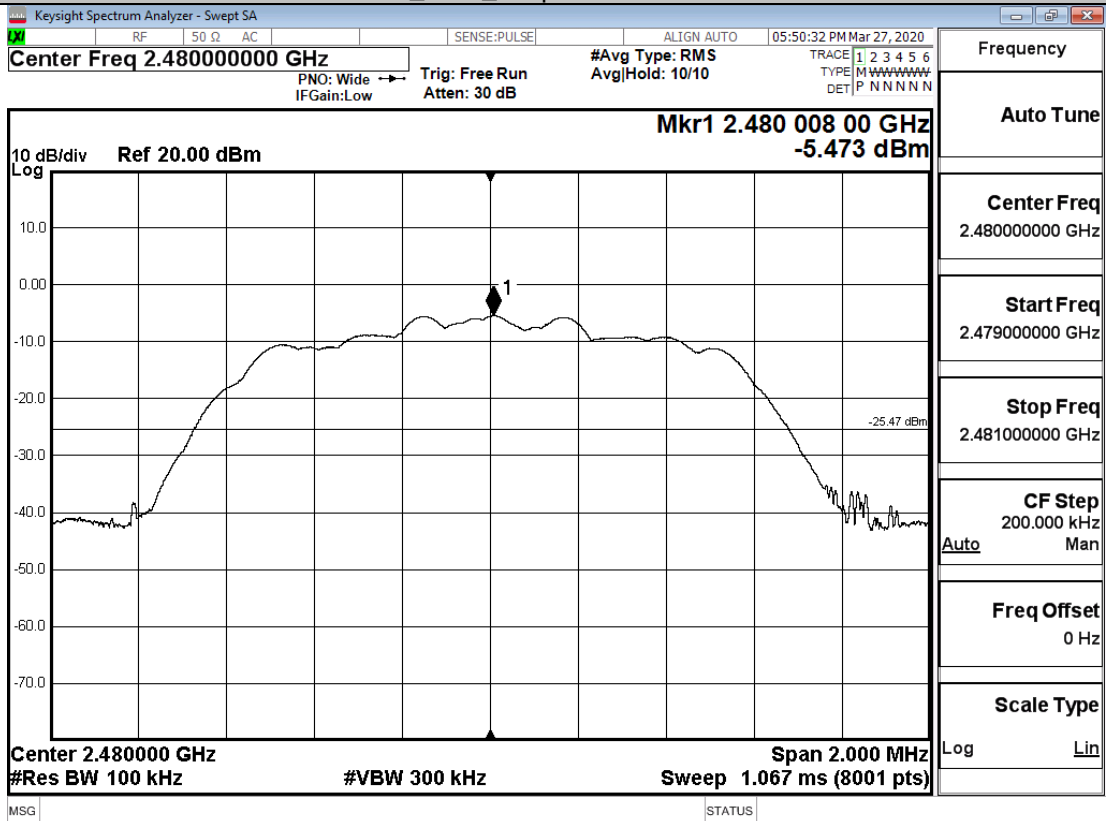


Puw

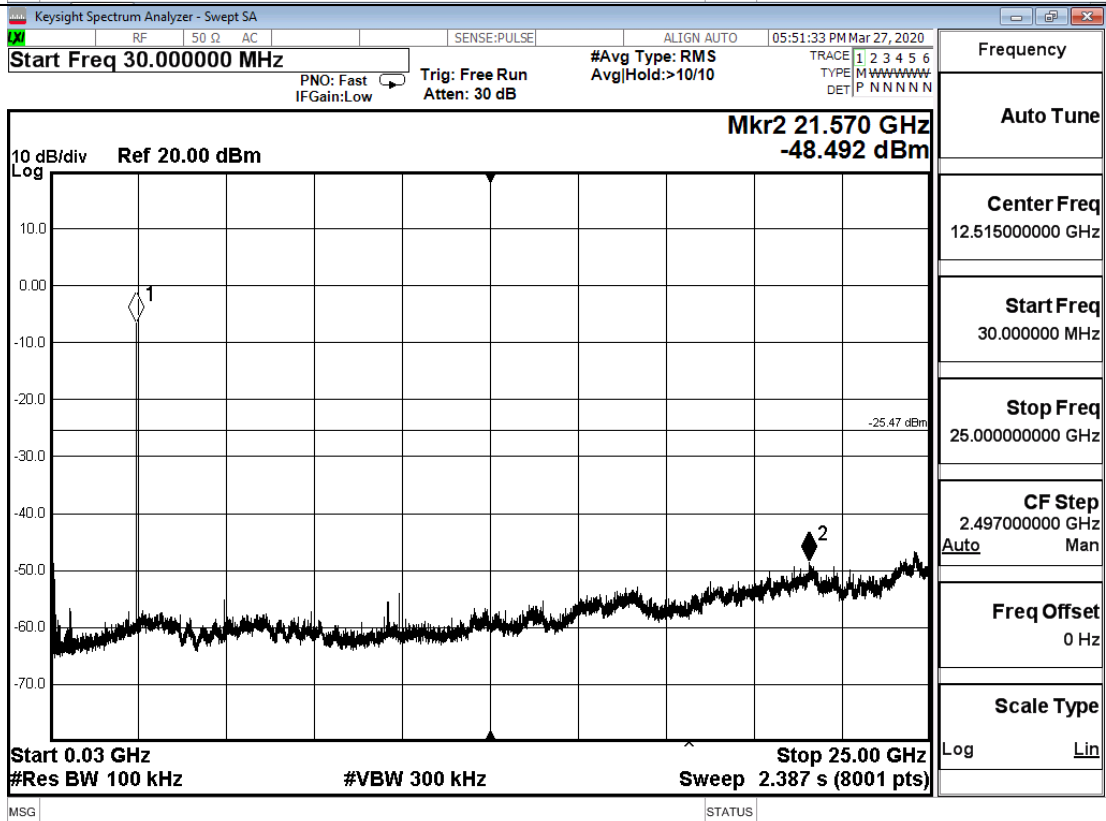


8-DPSK_HCH_Graphs

Pref



Puw

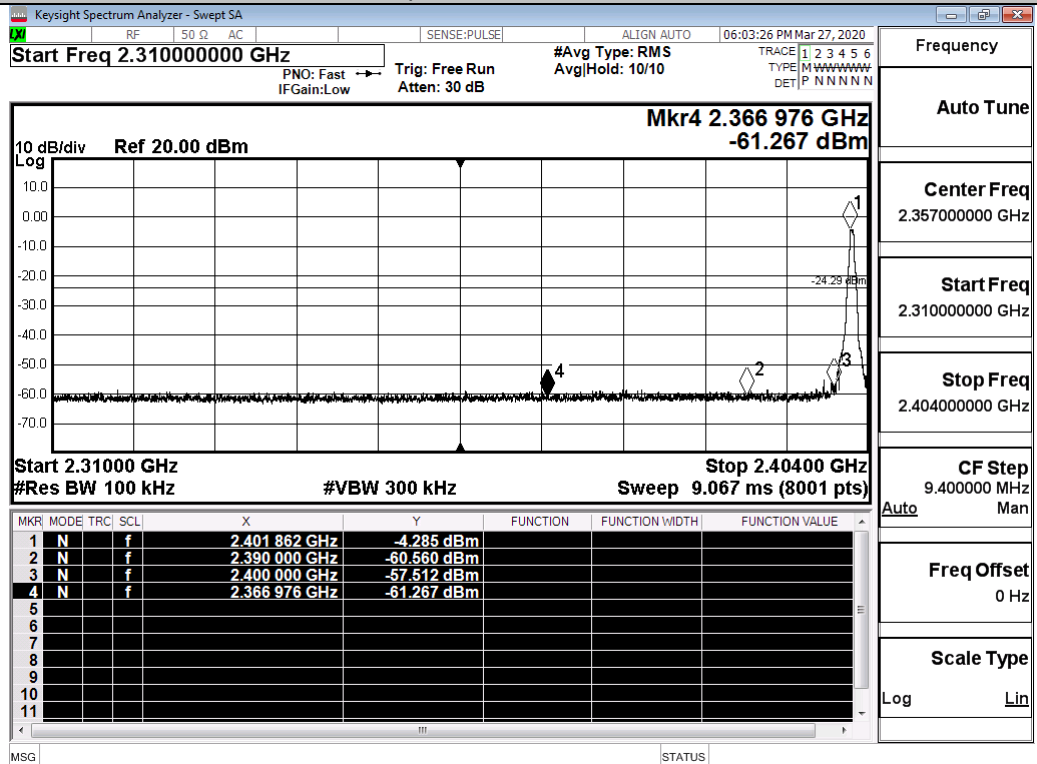


A.7 Band-edge for RF Conducted Emissions

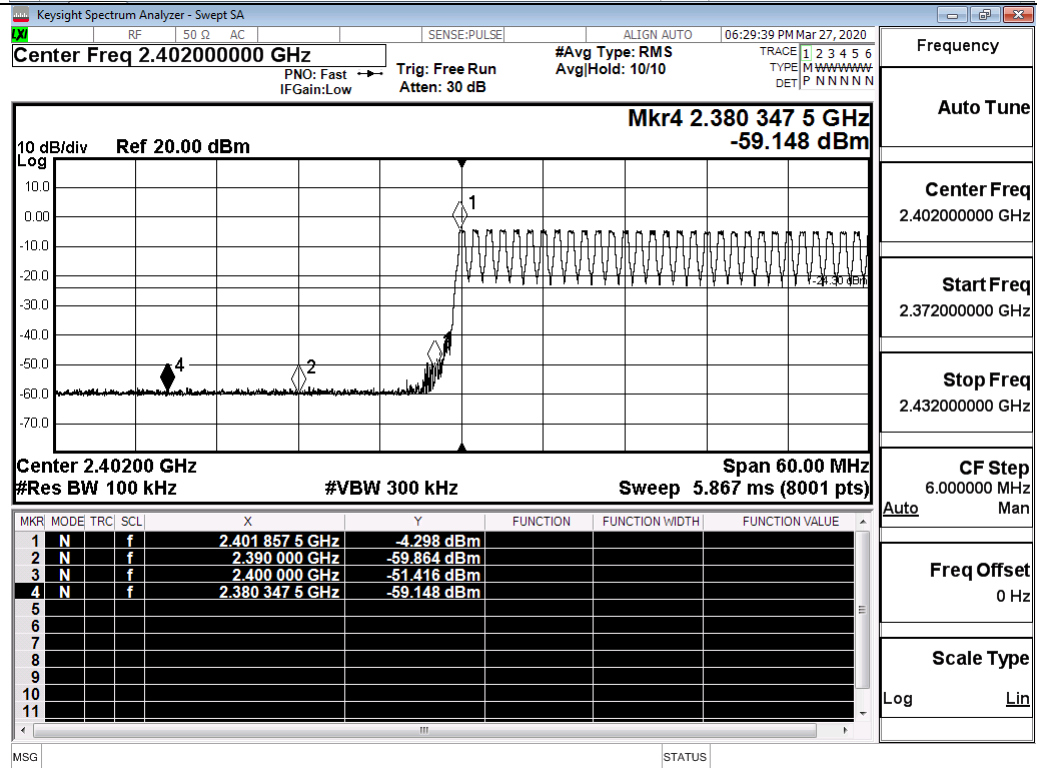
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-4.285	Off	-57.512	-4.29	PASS
			-4.298	On	-51.416	-4.30	PASS
	HCH	2480	-5.332	Off	-57.667	-5.33	PASS
			-5.383	On	-58.809	-5.38	PASS
$\pi/4$ DQPSK	LCH	2402	-4.323	Off	-48.603	-4.32	PASS
			-4.348	On	-50.185	-4.35	PASS
	HCH	2480	-5.386	Off	-58.792	-5.39	PASS
			-5.539	On	-58.447	-5.54	PASS
8-DPSK	LCH	2402	-4.319	Off	-53.115	-4.32	PASS
			-4.312	On	-54.421	-4.31	PASS
	HCH	2480	-5.323	Off	-57.402	-5.32	PASS
			-5.300	On	-56.502	-5.30	PASS

Test Graphs

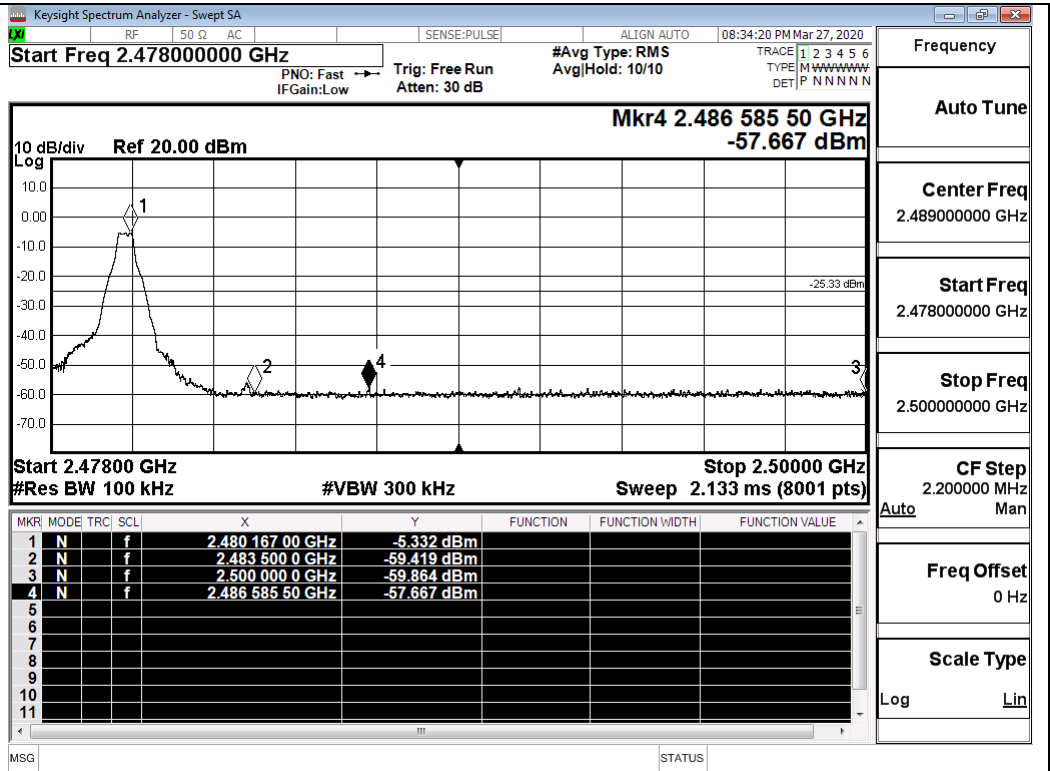
GFSK/LCH/No Hop



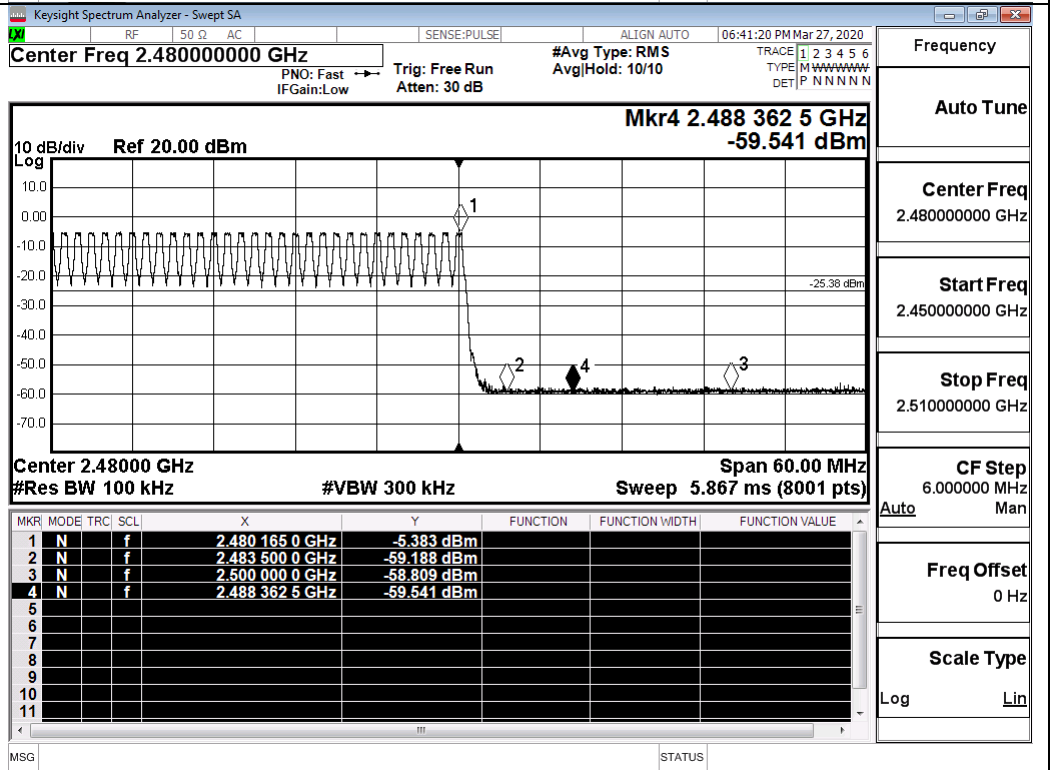
GFSK/LCH/Hop



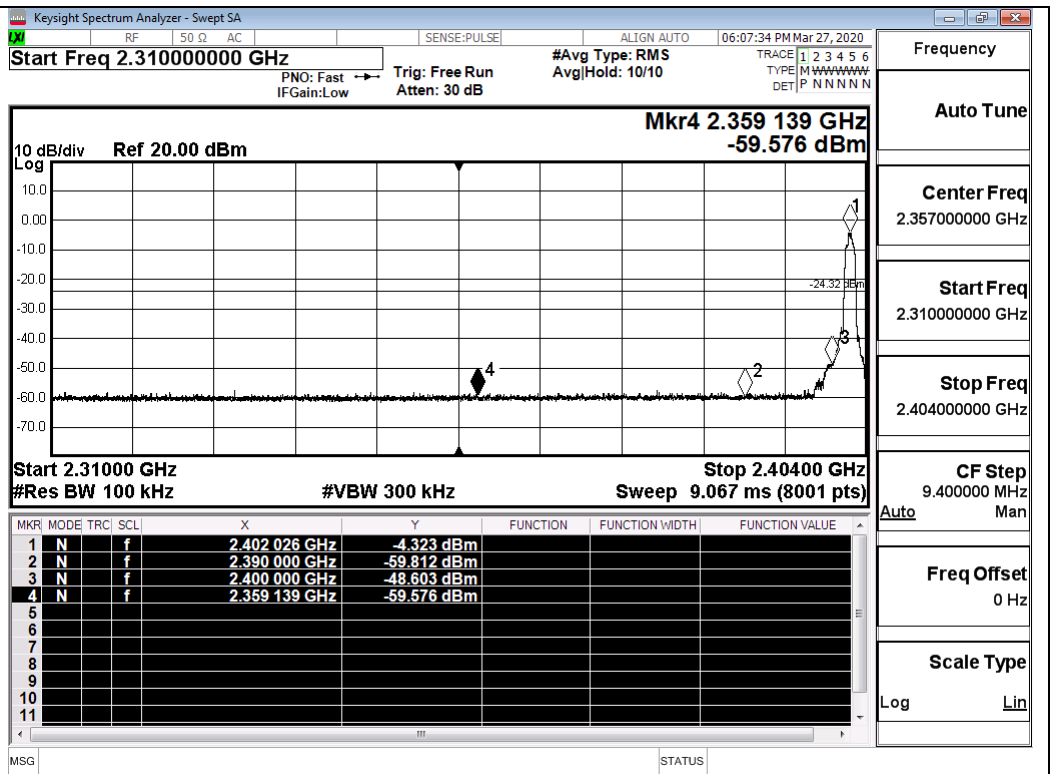
GFSK/HCH/No Hop



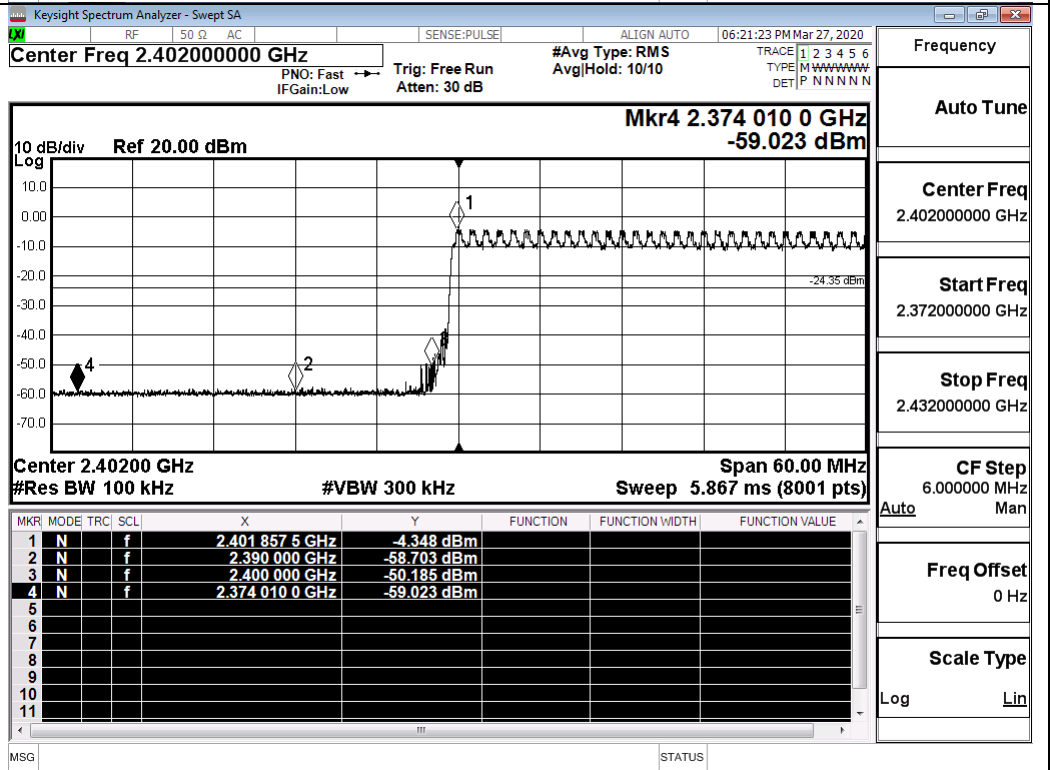
GFSK/HCH/Hop



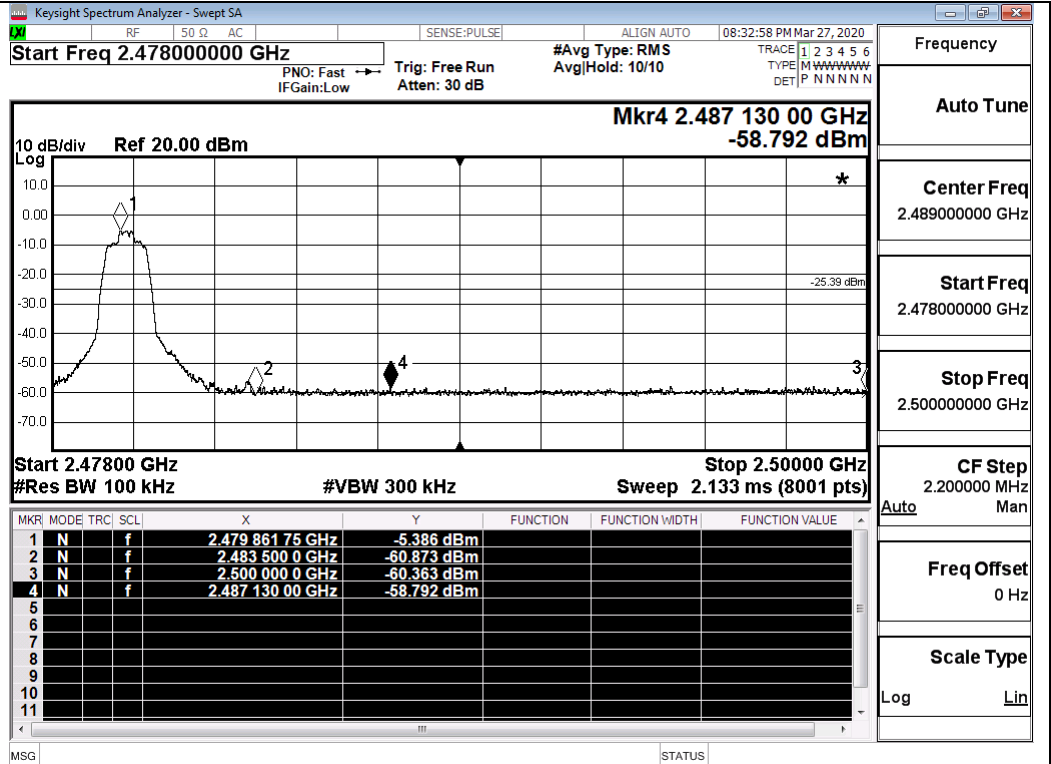
π /4DQPSK/LCH/No
Hop



π /4DQPSK/LCH/Hop

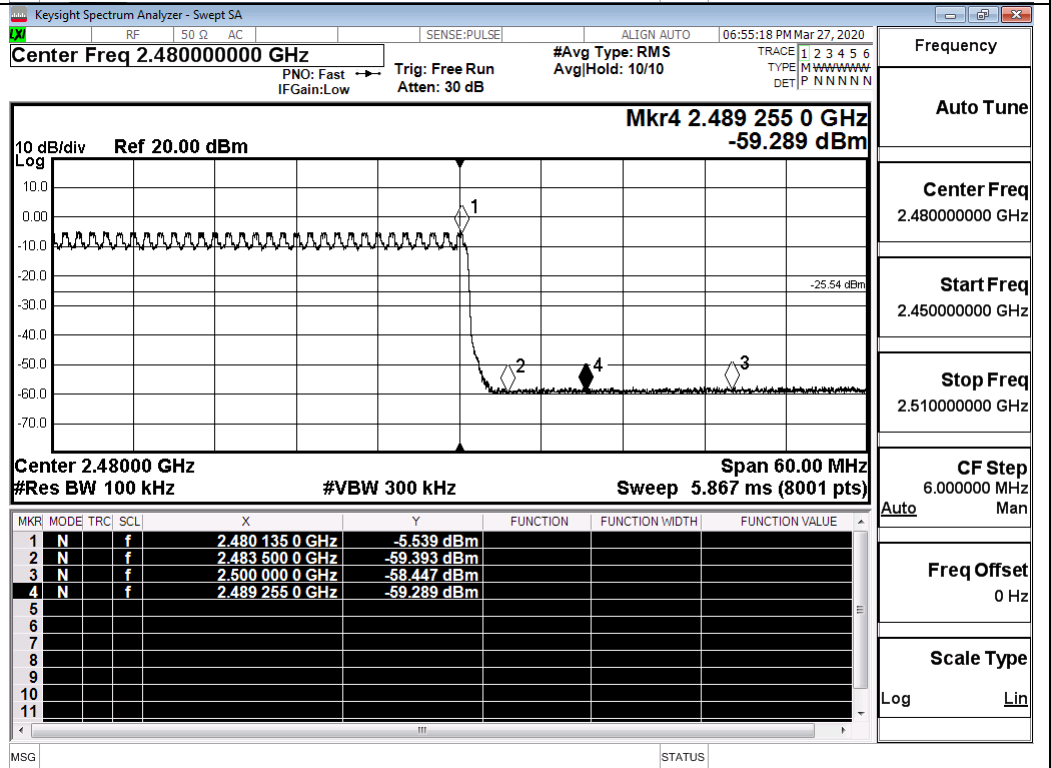


$\pi/4$ DQPSK/HCH/No Hop



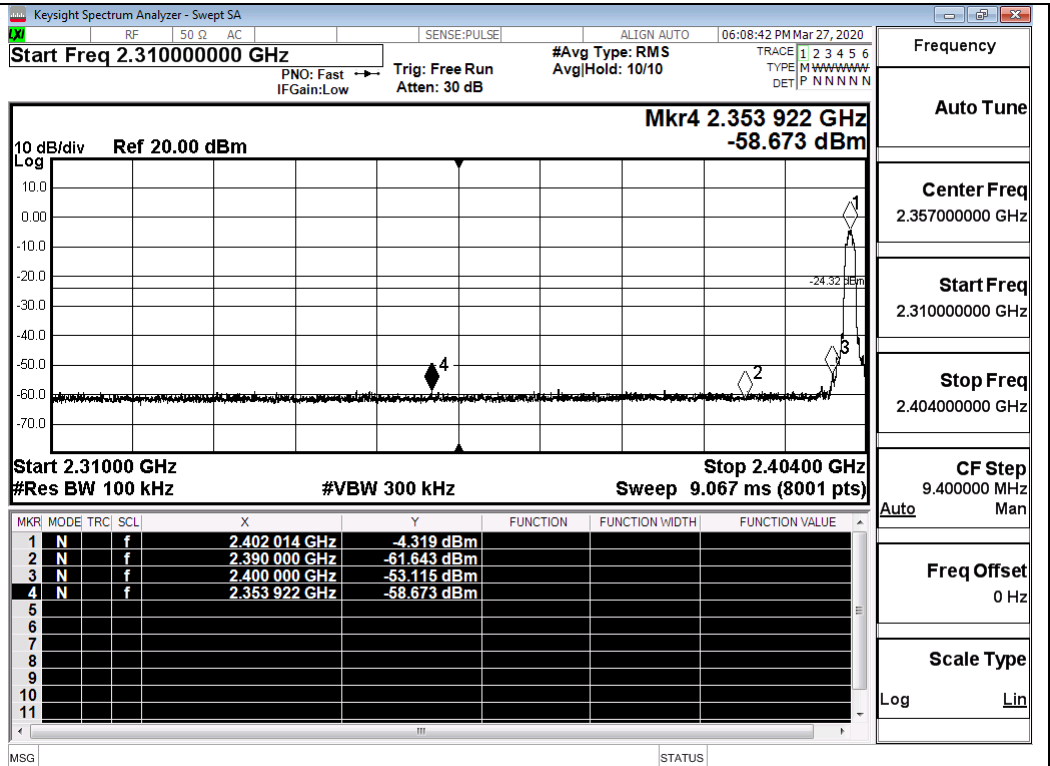
Frequency	
Auto Tune	
Center Freq	2.478000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log <u>Lin</u>

$\pi/4$ DQPSK/HCH/Hop

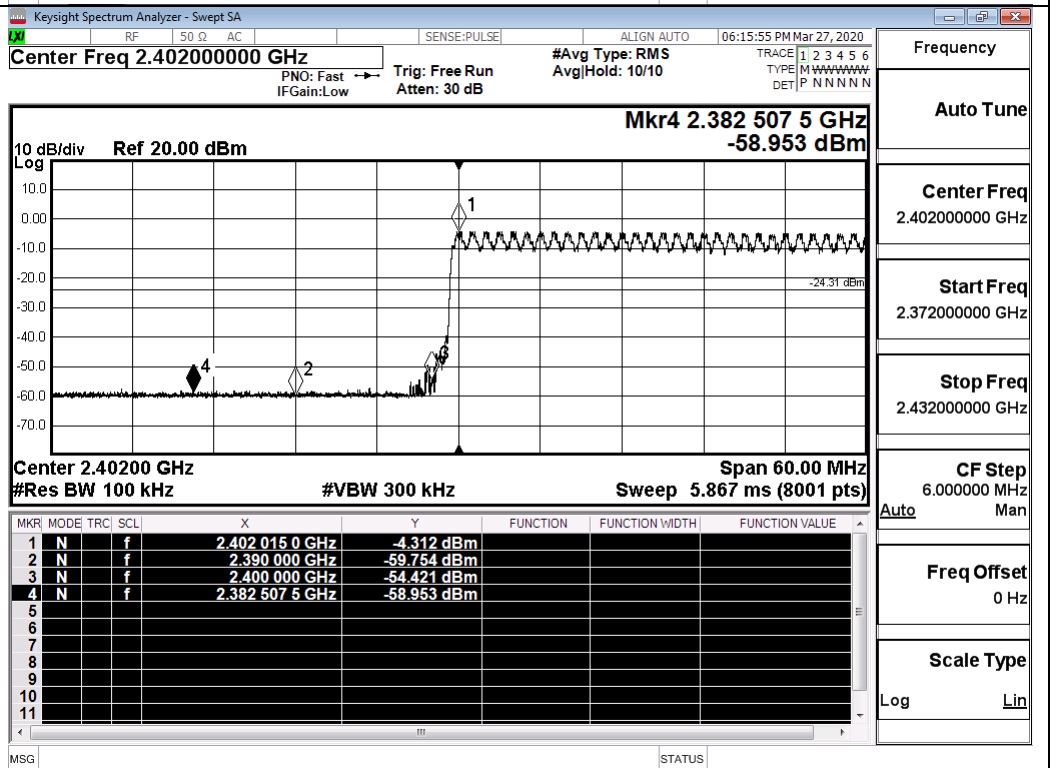


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.510000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz
Scale Type	Log <u>Lin</u>

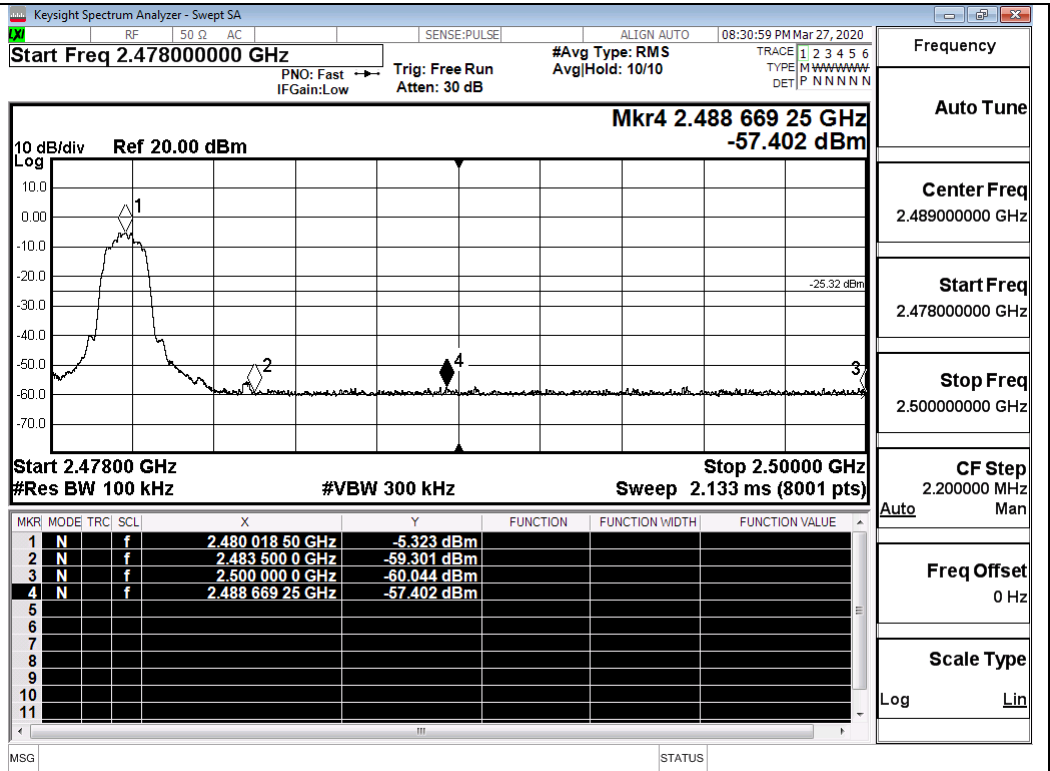
8-DPSK/LCH/No Hop



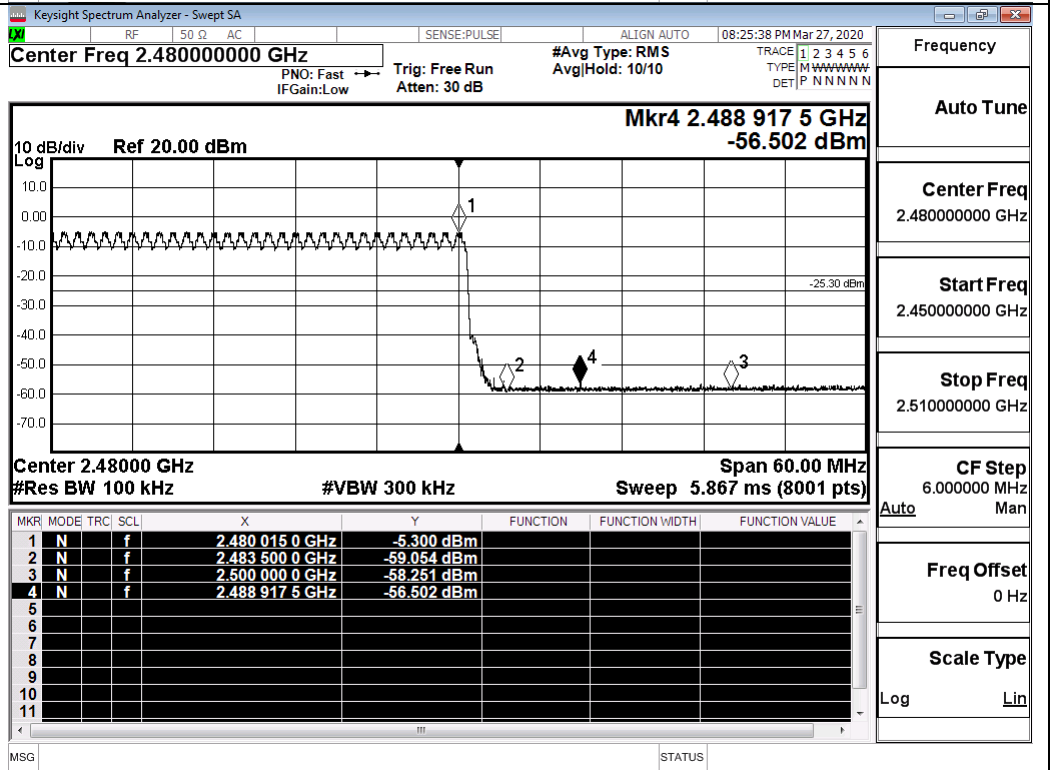
8-DPSK/LCH/Hop



8-DPSK/HCH/No Hop



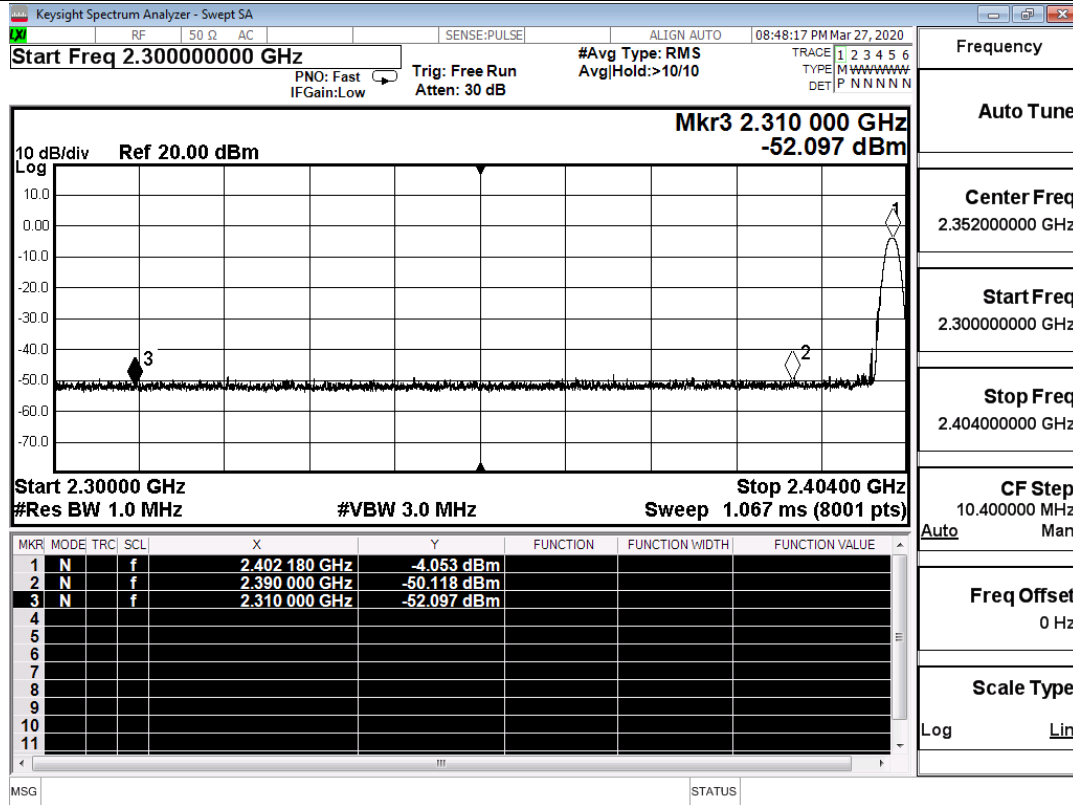
8-DPSK/HCH/Hop



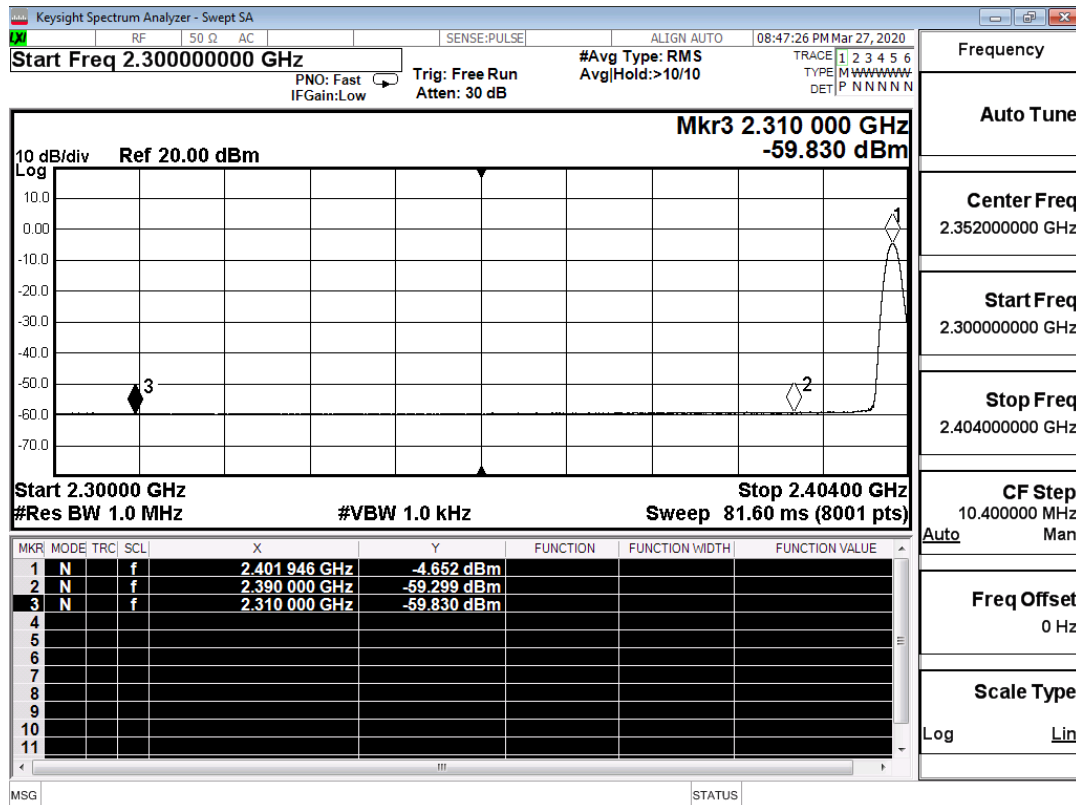
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-52.097	2.000	0	45.13	PEAK	74	PASS
	Off	2310.0	-59.830	2.000	0	37.40	AV	54	PASS
	Off	2390.0	-50.118	2.000	0	47.11	PEAK	74	PASS
	Off	2390.0	-59.299	2.000	0	37.93	AV	54	PASS
	Off	2483.5	-50.670	2.000	0	46.56	PEAK	74	PASS
	Off	2483.5	-58.502	2.000	0	38.73	AV	54	PASS
	Off	2500.0	-50.825	2.000	0	46.41	PEAK	74	PASS
	Off	2500.0	-58.774	2.000	0	38.46	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-51.820	2.000	0	45.41	PEAK	74	PASS
	Off	2310.0	-59.692	2.000	0	37.54	AV	54	PASS
	Off	2390.0	-52.137	2.000	0	45.09	PEAK	74	PASS
	Off	2390.0	-59.333	2.000	0	37.90	AV	54	PASS
	Off	2483.5	-50.708	2.000	0	46.52	PEAK	74	PASS
	Off	2483.5	-58.528	2.000	0	38.70	AV	54	PASS
	Off	2500.0	-50.459	2.000	0	46.77	PEAK	74	PASS
	Off	2500.0	-58.973	2.000	0	38.26	AV	54	PASS
8-DPSK	Off	2310.0	-52.081	2.000	0	45.15	PEAK	74	PASS
	Off	2310.0	-59.717	2.000	0	37.51	AV	54	PASS
	Off	2390.0	-51.502	2.000	0	45.73	PEAK	74	PASS
	Off	2390.0	-59.210	2.000	0	38.02	AV	54	PASS
	Off	2483.5	-50.103	2.000	0	47.13	PEAK	74	PASS
	Off	2483.5	-58.630	2.000	0	38.60	AV	54	PASS
	Off	2500.0	-51.283	2.000	0	45.95	PEAK	74	PASS
	Off	2500.0	-59.104	2.000	0	38.13	AV	54	PASS

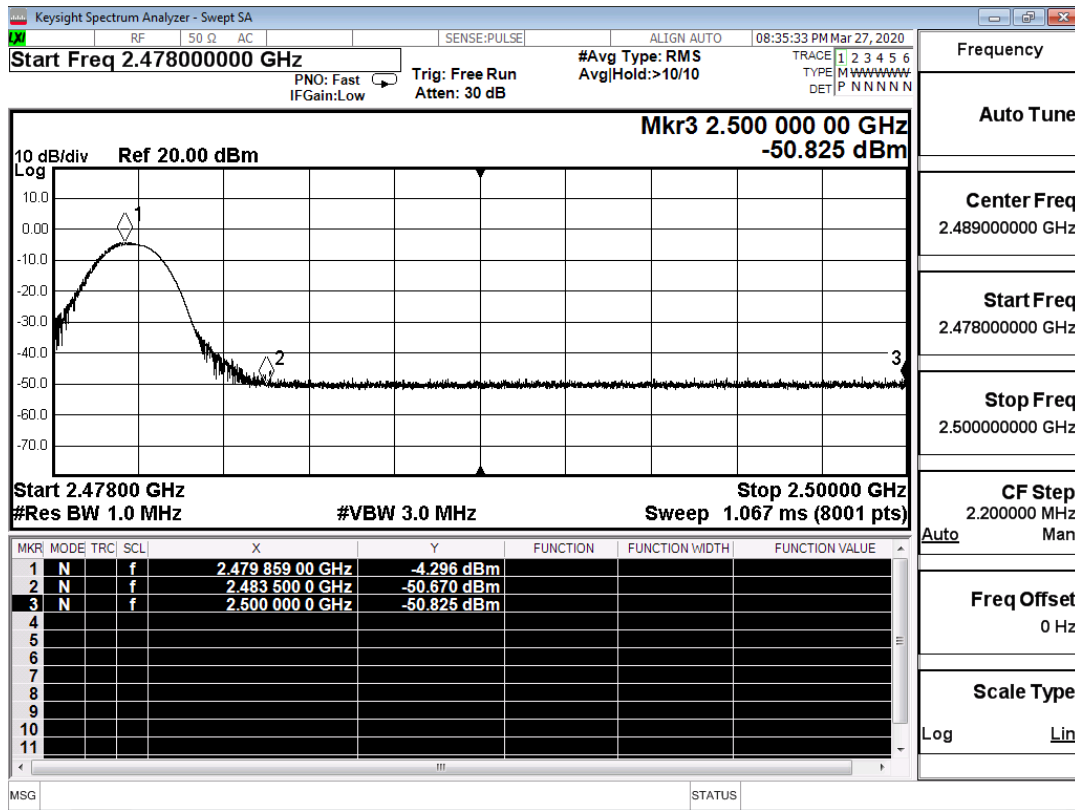
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



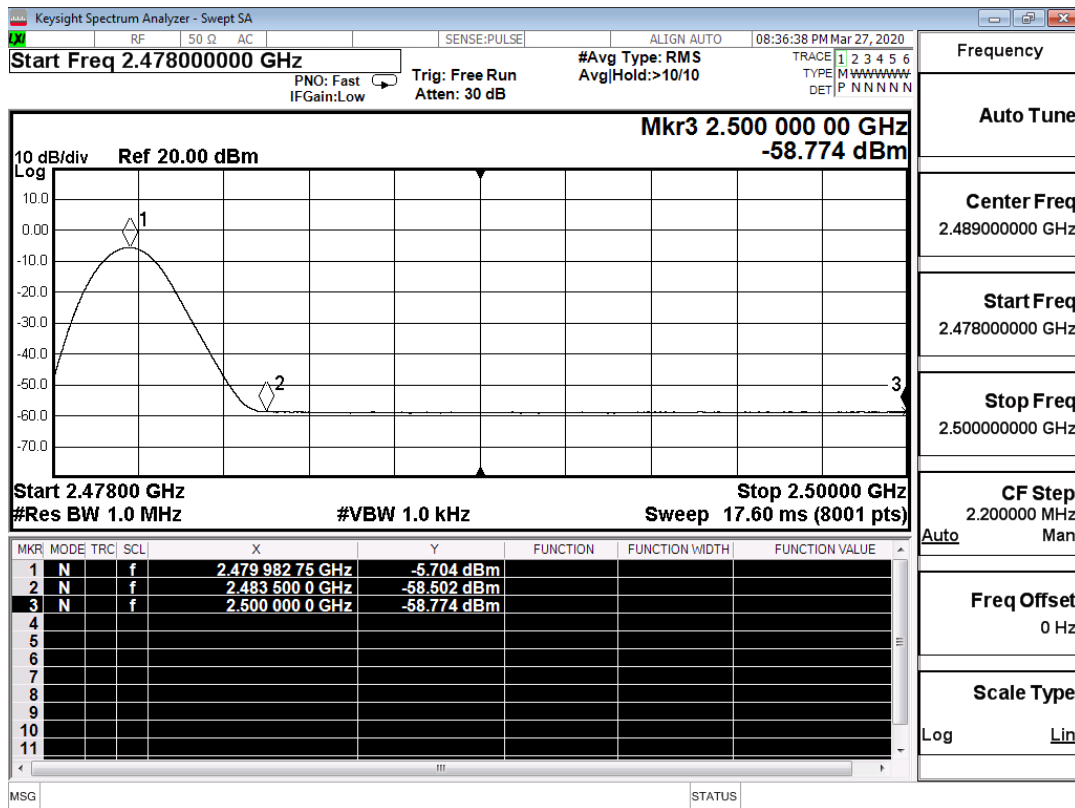
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



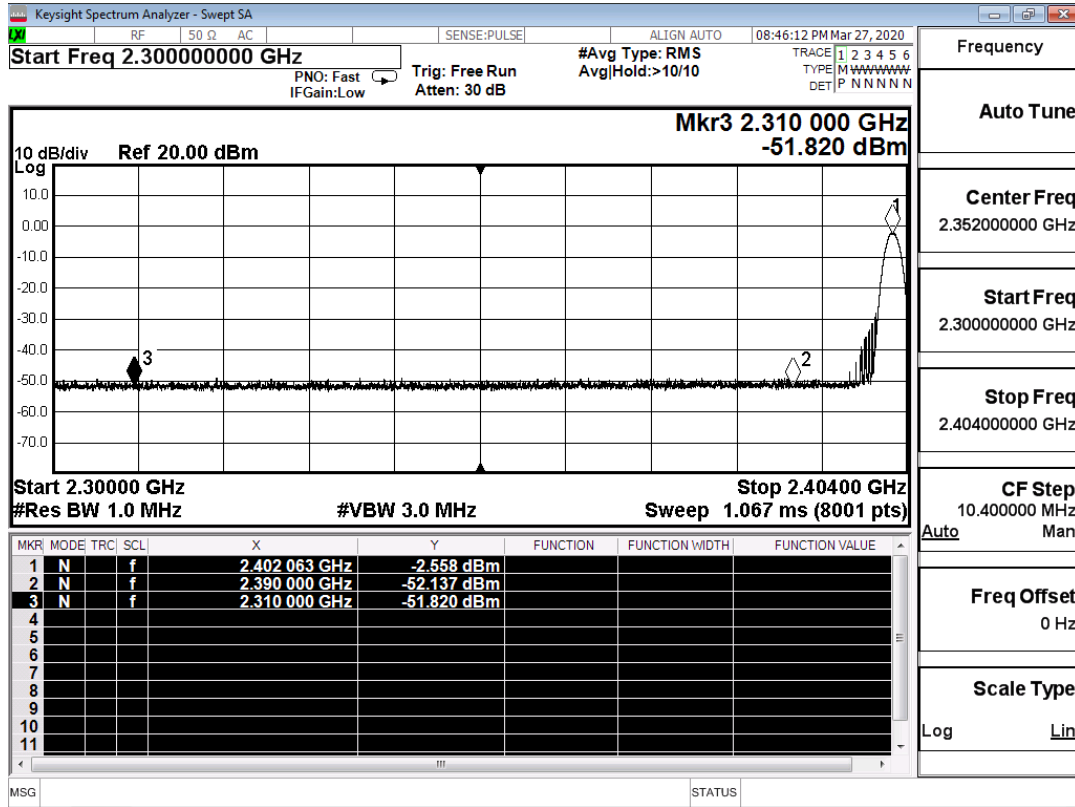
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



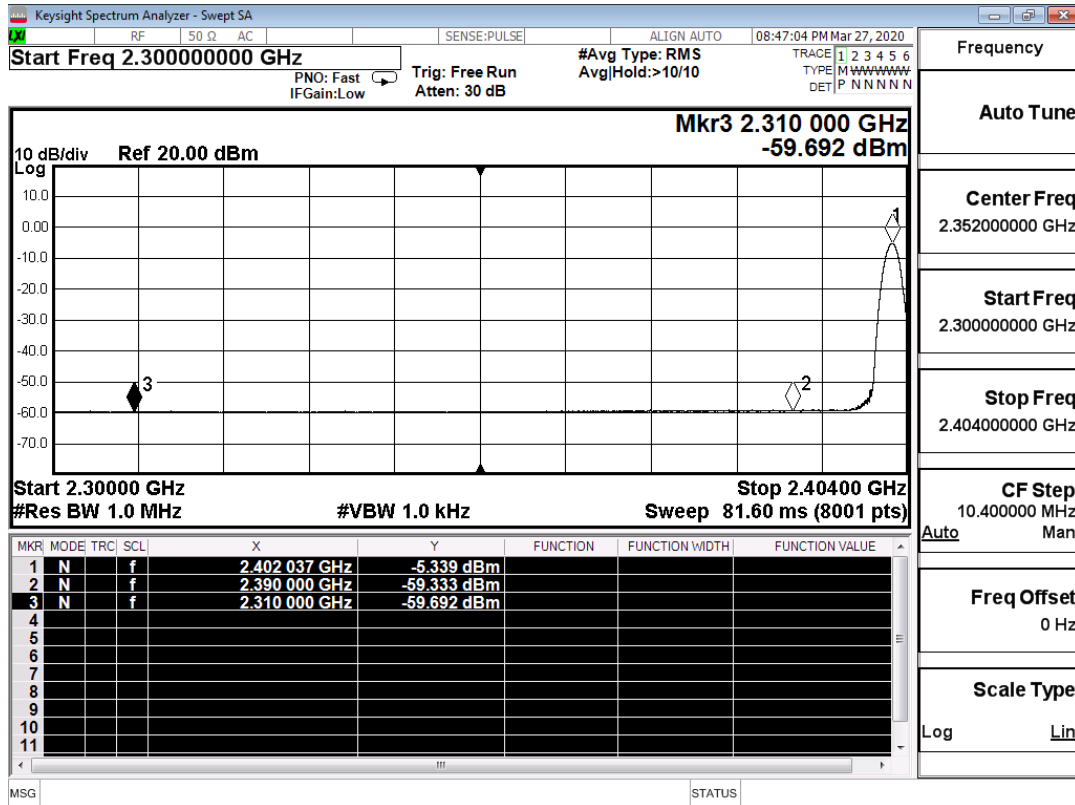
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



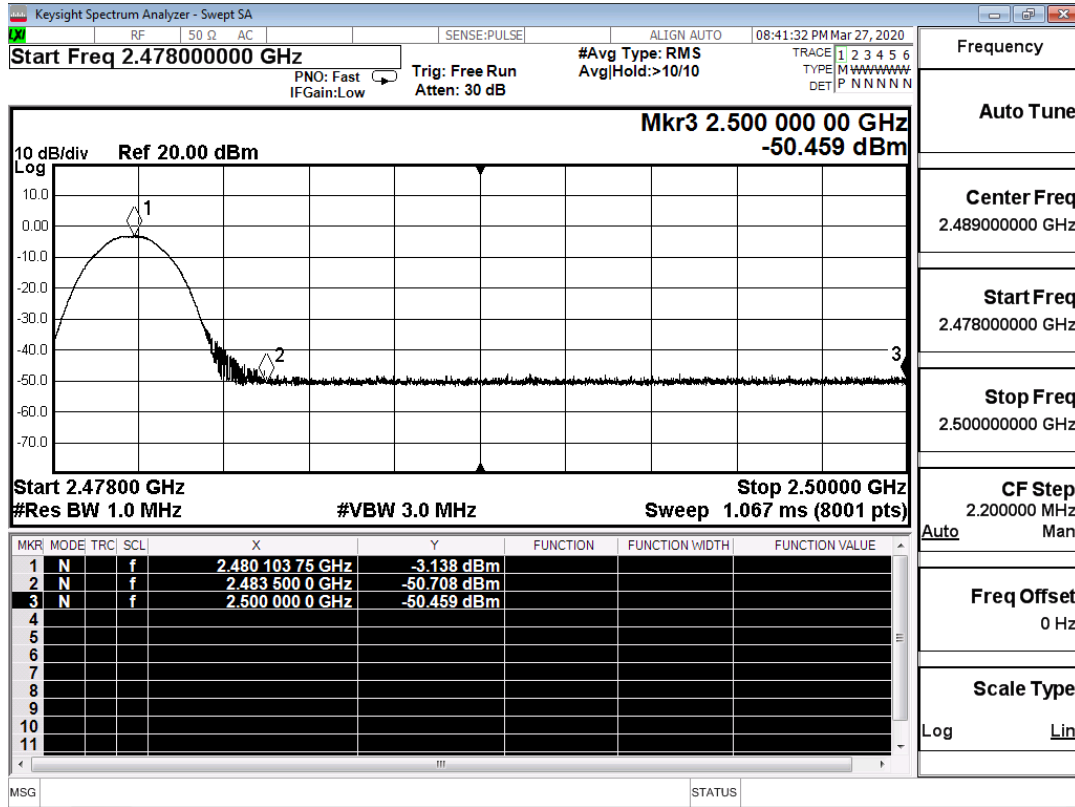
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



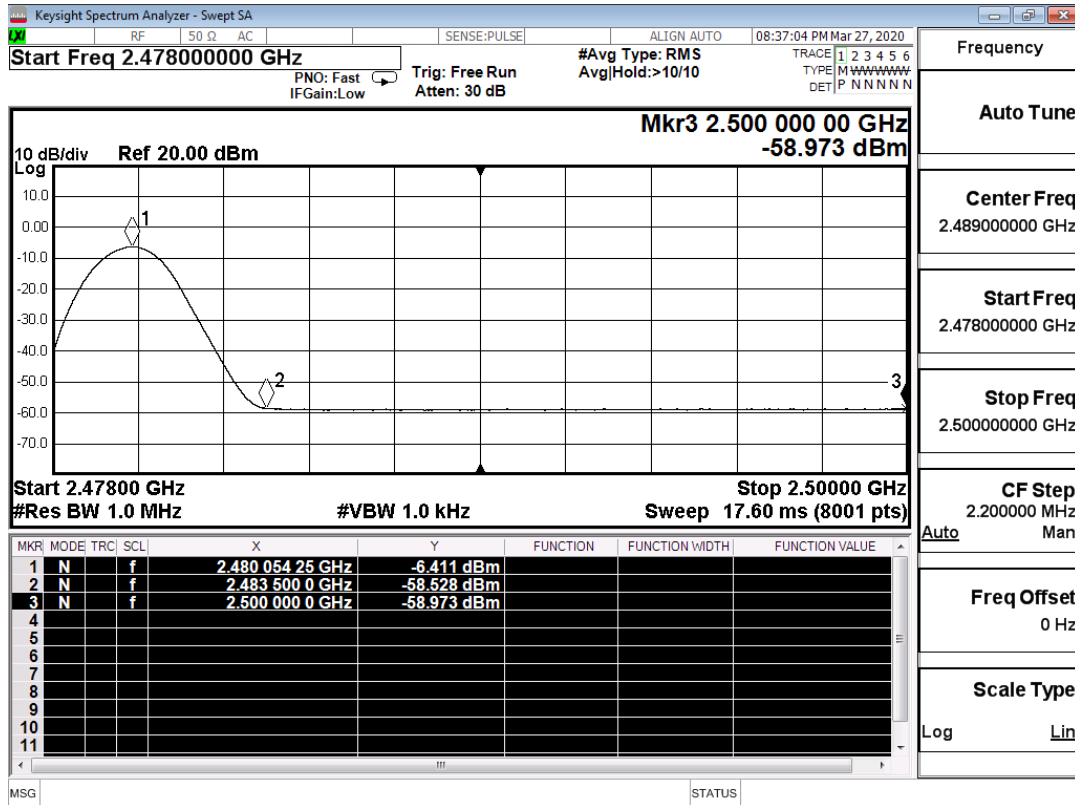
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



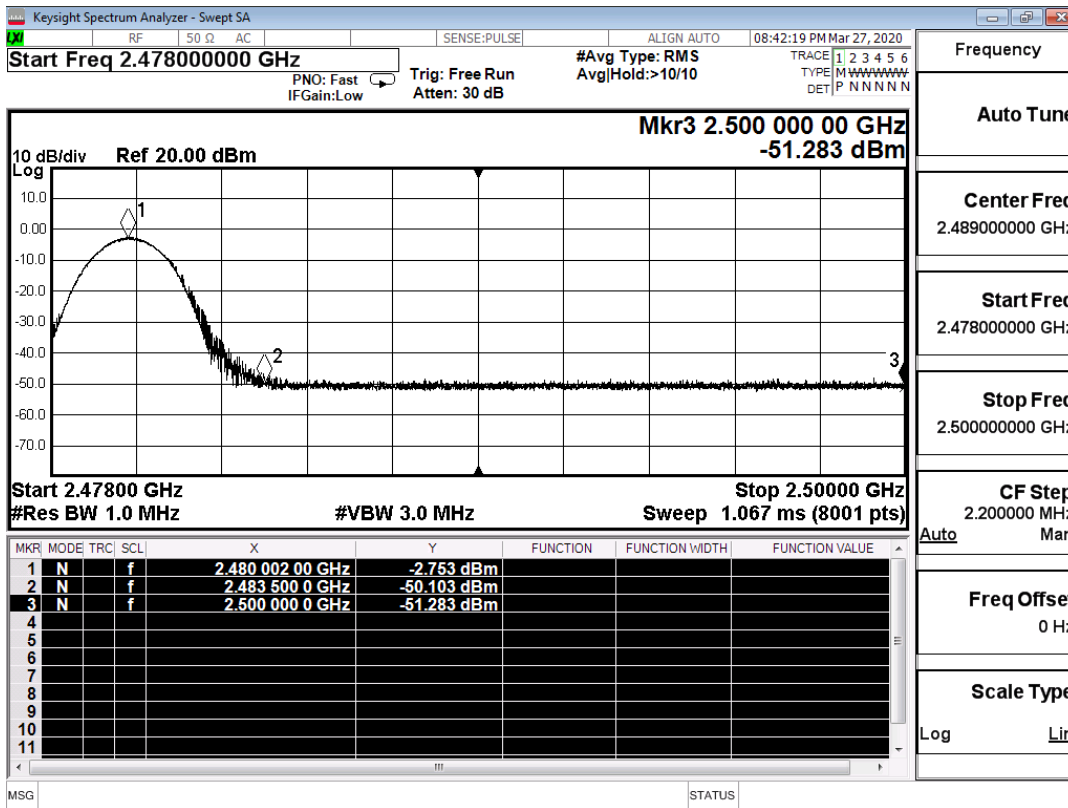
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



Restrict-band band-edge measurements_Hopping Off_8-DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8-DPSK_Average (High Channel)

